**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

| | | |
|---|---|---|
| INTELLECTUAL VENTURES I LLC | ) | |
| and | ) | |
| INTELLECTUAL VENTURES II LLC, | ) | |
| | ) | C.A. No. 6:21-cv-01088-ADA |
| Plaintiffs, | ) | |
| | ) | |
| v. | ) | **JURY TRIAL DEMANDED** |
| | ) | |
| GENERAL MOTORS COMPANY and | ) | |
| GENERAL MOTORS LLC, | ) | |
| | ) | |
| Defendants. | ) | |

**<u>DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF</u>**

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**TABLE OF AUTHORITIES**

**Cases:**

**Statutes:**

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**TABLE OF DISPUTED CLAIM TERMS**

| Order | Claim Term(s), Phrase(s), or Clause(s) | Asserted Claim(s) |
|---|---|---|
| 1 | "Method for addressing components of a first network in a data bus system in a transport vehicle, in which each component is assigned a first address for mutual communication within the network and the first addresses are stored in a central register, wherein at least one particular component of the first network communicates with a second network, said one component, when dialling into the second network, is assigned a second address by the second network, and wherein, within the first network, addressing takes place on the basis of function-specific address components, identical function blocks of the components being addressed via identical function-specific address components." | '283 Patent, Claim 1 |
| 2 | "wherein, within the first network, addressing takes place on the basis of a function specific address component"<br><br>"wherein addressing within the first network takes place on the basis of the function-specific address components" | '283 Patent, Claims 1, 21 |
| 3 | "Method according to claim 1, wherein a component of the first network registers a communication with the second network with the at least one particular component which communicates with the second network, whereupon a component of the at least one particular component, with the internal address from the first network, enables communication with an external IP address and thereupon sets up communication with the second network" | '283 Patent, Claim 2 |
| 4 | "Local Area Network (LAN) routing system managing the data path between said wireless access point and said internet access interface" | '771 Patent, Claims 1, 9 |
| 5 | "without the need to access an external service controller server" | '771 Patent, Claim 1 |
| 6 | "transmit opportunity" | '318 Patent |
| 7 | "wherein the transmit opportunity is commenced with a control frame" | '318 Patent |
| 8 | "automatically forming a network of the plurality of network elements" | '004 Patent, Claim 68 |
| 9 | "the assembled plurality of network elements" | '004 Patent, Claim 68 |
| 10 | "the processor is further configured to receive feedback information from a downlink control channel"/ "receiving, by the UE, feedback information from a downlink control channel" | '356 Patent, Claims 1, 22 |

| Order | Claim Term(s), Phrase(s), or Clause(s) | Asserted Claim(s) |
|---|---|---|
| 11 | "integration time" | '158 Patent, Claims 1-3, 7-9, 11-16 |
| 12 | "an image capture device" | '158 Patent, Claim 1 |
| 13 | "an interface … configured to receive the integration time of the each sensor as an input to an image capture device" | '158 Patent, Claim 3 |
| 14 | "violation" | '475 Patent, Claims 1, 3-5, 7-8, 10-12, 15, 17-20 |
| 15 | "first user preference" | '608 Patent, Claims 1, 2, 8-10 |
| 16 | "a geographic area limitation" | '608 Patent, Claims 1, 2, 5, 8, 9, 12 |
| 17 | "substantially real-time updates" | '608 Patent, Claims 4, 10 |
| 18 | "First parameter," "second "parameter," "third parameter," and "fourth parameter" | '466 Patent, Claims 1, 3, 6, 8 |
| 19 | "wherein resources are allocated for data of each channel of a radio bearer having a second parameter above zero prior to another channel's data for transmission having a third parameter less than or equal to zero"<br><br>"wherein resources are allocated for data of each channel [of a radio bearer] having a second parameter above zero [before/prior to] another channel's data for transmission having a third parameter less than or equal to zero" | '466 Patent, Claims 1, 6 |
| 20 | "store video data in the buffer" | '628 Patent, Claim 1 |
| 21 | "wherein the selection of the data occurs using a first iteration and a second iteration" | '138 Patent, Claims 1, 8 |
| 22 | "wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters, wherein in the second iteration, the selection of the data is based on buffered data for respective radio bearers" | '138 Patent, Claims 1, 8 |

| Order | Claim Term(s), Phrase(s), or Clause(s) | Asserted Claim(s) |
|---|---|---|
| 23 | "local content module that stores content that can be accessed by said client devices directly through said high-speed access point" | '771 Patent, Claim 4 |
| 24 | "a processor configured to determine the length of time of the transmit opportunity based on a priority of the first queue" | '318 Patent, Claim 1 |
| 25 | "a processor configured to receive resource allocation information associated with an uplink physical control channel . . ." <br><br>"the processor is further configured to send data over the physical uplink shared channel in assigned time intervals" <br><br>"the processor is further configured, in a time interval that it is not sending information over the physical uplink shared channel, to send a signal over the uplink physical control channel based on the received resource allocation information;" | '356 Patent, Claim 1 |
| 26 | "circuitry configured to receive broadcast information to access an orthogonal frequency division multiple access (OFDMA) system . . ." <br><br>"circuitry configured to determine a second bandwidth of a second band that is associated with the OFDMA system based upon the broadcast information received in the first band . . ." <br><br>"wherein the mobile station is configured to operate within the plurality of operating channel bandwidths" | '641 Patent, Claims 11, 25 |
| 27 | "a processing component configured to…" <br><br>"the processing component is configured to…" <br><br>"the processing component is further configured to…" | '158 Patent, Claim 1, 5, 9 |
| 28 | "processing module configured to determine, while the device is in the vehicle, that the vehicle committed a violation based on the information about the vehicle" | '475 Patent, Claim 15 |
| 29 | "processor is configured to:…Detect a movement of a door latch of a vehicle" <br><br>"processor is configured to:…"attempt to detect a wireless key fob configured to provide digital authorization for an attempted access event" | '628 Patent, Claim 1 |
| 30 | "processor is configured to . . . ." | '138 Patent, Claim 1 |

**TABLE OF EXHIBITS**

| Exhibit No. | Description |
|---|---|
| **Ex. A** | **Declaration of Scott Andrews** |
| Andrews Ex. 1 | 7,891,004 |
| Andrews Ex. 2 | Prosecution History of U.S. Patent No. 7,891,004 |
| Andrews Ex. 3 | 9,232,158 |
| Andrews Ex. 4 | Prosecution History of U.S. Patent No. 9,232,158 |
| Andrews Ex. 5 | 6,832,283 |
| Andrews Ex. 6 | Prosecution History of U.S. Patent No. 6,832,283 |
| Andrews Ex. 7 | 9,291,475 |
| Andrews Ex. 8 | Prosecution History of U.S. Patent No. 9,291,475 |
| Andrews Ex. 9 | 9,602,608 |
| Andrews Ex. 10 | Prosecution History of U.S. Patent No. 9,602,608 |
| Andrews Ex. 11 | 9,934,628 |
| Andrews Ex. 12 | Prosecution History of U.S. Patent No. 9,934,628 |
| Andrews Ex. 13 | Fast Tone Mapping for High Dynamic Range Images, but Juiang Duan and Guoping Qiu, Proceedings of the 17th International Conference on Pattern Recognition (ICPR'04) 1051-4651/04, IEEE 2004 |
| Andrews Ex. 14 | U.S. 5,801,773 (Ikeda) |
| Andrews Ex. 15 | JP 1999/317905 (Nakajima) |
| Andrews Ex. 16 | U.S. Pat. Pub. 2002/0012071 (Sun) |
| Andrews Ex. 17 | U.S. 6,611,289 (Yu) |
| Andrews Ex. 18 | U.S. 6,943,837 (Booth) |
| Andrews Ex. 19 | Extending Dynamic Range of Two Color Images under Different Exposures, by Won-ho, Cho and Ki-Sang, Hong, Published in the Proceedings of the 17th International Conference on Pattern Recognition (ICPR'04), 1051-4651/04 IEEE 2004. |
| Andrews Ex. 20 | https://historycooperative.org/first-camera-the-history-of-cameras/ |
| Andrews Ex. 21 | ANSI PH 2.7-1986 |
| Andrews Ex. 22 | Automotive Electronics Handbook, by Ronald Jurgen |
| Andrews Ex. 23 | A. Tanenbaum, Computer Networks, 3rd Edition, Prentice-Hall International, Inc. (1996) |
| Andrews Ex. 24 | U.S. 6,097,021 (Aswell) |
| **Ex. B** | **Declaration of Christopher Hansen Ph.D.** |
| Hansen Ex. 1 | '356 Patent File History, 6/19/2008 Response to Non-Final Office Action, at 8 |
| Hansen Ex. 2 | IEEE 802.11-00/071 |
| Hansen Ex. 3 | IEEE 802.11e-2005 |
| **Exhibit C** | **Declaration of Paul S. Min** |
| Min Ex. 1 | 9,681,466 |
| Min Ex. 2 | Prosecution History of U.S. Patent No. 9,681,466 |
| Min Ex. 3 | 10,292,138 |

| Exhibit No. | Description |
|---|---|
| Min Ex. 4 | Prosecution History of U.S. Patent No. 10,292,138 |
| Min Ex. 5 | 8,953,641 |
| Min Ex. 6 | Prosecution History of U.S. Patent No. 8,953,641 |
| Min Ex. 7 | 8,811,356 |
| Min Ex. 8 | Prosecution History of U.S. Patent No. 8,811,356 |
| Min Ex. 9 | Andrew Tanenbaum, Computer Networks (Fourth Edition) (2003) ("Tanenbaum") |
| Min Ex. 10 | C. Smith And D. Collins, 3g Wireless Networks, (2002) ("Smith") |
| Min Ex. 11 | OFDM: Back to the Wireless Future, Computer, Vol. 35, Issue 12, December 2002 |
| Min Ex. 12 | "WCDMA for UMTS," by Harri Holma and Antti Toskala, Wiley & Sons, 2001, ISBN 0471486876 |
| Min Ex. 13 | IEEE Standard Dictionary of Electrical and Electronics Terms, IEEE Std 100-1992 |
| Min Ex. 14 | Dictionary of Materials and Testing |
| Min Ex. 15 | Pocket Illustrated Dictionary of Engineering Terms, 2001 |
| **Ex. D** | **7,382,771** |
| **Ex. E** | **'771 File History, November 30, 2007 Response to Office Action** |
| **Ex. F** | **7,684,318** |
| **Ex. G** | **'318 File History, 6/19/2008 Response to Non-Final Office Action** |
| **Ex. H** | **Court Email** |
| **Ex. I** | **6,598,155 (Ganapathy)** |
| **Ex. J** | **E2V Technologies, CCD Sensors Technical Note Glossary of Terms** |

Defendants General Motors Company and General Motors LLC (collectively, "Defendants" or "GM"), hereby respectfully submit their opening brief in support of construction of the disputed terms and limitations in U.S. Patent Nos. 6,832,283 (the "'283 Patent"); 7,382,771 (the "'771 Patent"); 7,684,318 (the "'318 Patent"); 7,891,004 (the "'004 Patent"); 8,811,356 (the "'356 Patent"); 8,953,641 (the "'641 Patent"); 9,232,158 (the "'158 Patent"); 9,291,475 (the "'475 Patent"); 9,602,608 (the "'608 Patent"); 9,681,466 (the "'466 Patent"); 9,934,628 (the "'628 Patent"); and 10,292,138 (the "'138 Patent") (collectively "Asserted Patents") asserted by Plaintiffs Intellectual Ventures I LLC and Intellectual Ventures II LLC (collectively, "Plaintiffs" or "IV").

GM's proposed constructions should be adopted because they accurately reflect how the patentees defined the present inventions or disclosures in the Asserted Patents, account for how the patentees disclaimed or distinguished their inventions from the prior art, and they provide helpful clarification that will avoid potential jury confusion. In addition, many of the Asserted Claims are indefinite because they employ terms that claim functions performed by computers without providing any structure (*e.g.*, an algorithm) that performs the claimed function in the patent specification. For convenience, GM has grouped the functional claim terms for all the patents together in the last section of this brief.

## I.   ARGUMENT

### A.   '283 Patent

The '283 patent is generally directed to a method for addressing components of a network in a vehicle that uses "function-specific address" components for mutual communication within a first network, where identical function blocks of the components are addressed using identical function-specific address components. The method further includes at least one "particular"

component of the first network that communicates with another network such that, when dialling into the network, receives a second address from that network. '283 Patent, Abstract. The patent discloses addressing components are structured into a well-known format (*i.e.*, IP addresses), except that the components of the addresses relate in part to the network elements, and in part to specific functions that are performed by the network element. *See* '283 Patent, Figs. 1 and 2. Using this scheme, the patent asserts it is possible, for example, to remove and replace an element in the network without need for re-configuring the network. This approach also supports communication between a network formed in the above-described way, and a more conventional IP based network.

### a.   '283 Patent, Term 1: Claim 1 in its entirety

| GM's Construction | IV Construction |
|---|---|
| *Indefinite* | *Plain and ordinary meaning, no construction necessary* |

Claim 1 of the '283 patent is indefinite because it is a method claim without **any** active, positive steps.[1] Specifically, claim 1 is directed to a "[m]ethod for addressing components of a first network in a data bus system in a transport vehicle." However, the limitations recite conditions of the system or environment, including using the past tense (as if certain conditions had already

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[1] *In re Hartman*, 513 F. App'x 955, 957 (Fed. Cir. 2013) (per curiam) ("failure to recite any required steps [in a method claim] renders these claims indefinite, since it leaves the claims without any meaningful limitations"); *Ex Parte Werner Fries, Karl-Wilheim Klemm, Arnold Dobbelstein & Werner Sobitzkat*, No. 1997-3643, 2001 WL 1057428, at *5 (B.P.A.I. 2001) ("Attempts to claim a process without setting forth any steps involved in the process are indefinite as they merely recite a use without any active, positive steps delimiting how this use is actually practiced.") (citing *Ex parte Erlich*, 3 USPQ.2d 1011, 1017 (Bd. Pat. App. & Inter. 1986)); *Regents of Univ. of California v. Hansen*, No. CIV S98-0715 WBS PAN, 1999 WL 33268423, at *6 (E.D. Cal. Nov. 8, 1999) ("Under *Erlich*, 'a method claim should at least recite a positive, active step(s) so that the claim will 'set out and circumscribe a particular area with a reasonable degree of precision and particularity' and make it clear what subject matter these claims encompass, as well as making clear the subject matter from which others would be precluded."); *Clinical Prod. Ltd. v. Brenner*, 255 F. Supp. 131, 133 (D.D.C 1966) ("there appears to be sound logic in defendant's argument that a proper process or method claim should recite at least one process step").

been done or are part of a configured system), are written passively (as if describing a characteristic of the component), and/or describe functional characteristics of the components in the claim. None of the limitations require a positive, active step.

First, as shown above, the preamble states a method "for addressing" without requiring that any "addressing" occurs or be performed. Moreover, neither party has asserted that the preamble is limiting.  Ex. A, Andrews Decl., ¶¶170-172.

Second, the term "*in which* each component *is assigned* a first address for mutual communication within the network and the first addresses *are stored* in a central register" does not recite an active step. The terms "is assigned" and "are stored" indicate a condition of the system in which the "method" will be performed; either something that has occurred or will occur at some unspecified time by some unspecified entity. Moreover, the terms are passive—something that has been performed to "each component" and the "first addresses," but neither indicates an actual step that is part of the claimed "method." Ex. A, Andrews Decl., ¶¶173-174.

Third, the term "wherein at least one particular component of the first network *communicates* with a second network, said one component, *when dialling* into the second network, *is assigned* a second address by the second network" does not recite an active step. The "communicates" term describes a functional feature of the "one particular component" or, at most, something it does, can do, or will do, but does not require any step be performed. Similarly, "when dialing" simply states a precondition of when the "second network" "is assigned." But the term does not require the alleged infringer to perform any communication, dialing, or assigning. Only if there is a dialing, then there is an assignment of second address (or perhaps a system that is configured to assign a network address). The claim simply describes how this system is configured

or functions. Moreover, the term is written in the passive voice – "by the second network," further confirming it is not an active step. Ex. A, Andrews Decl., ¶175.

Fourth, the term "wherein, within the first network, **addressing takes place** on the basis of function-specific address components, identical function blocks of the components being addressed via identical function-specific address components" again recites no active steps. It describes how addressing is done within the "first network"—*i.e.*, how the system is configured to operate. It does not require that the "addressing" is performed. Thus, if a system exists in which addressing would take place as described, but no addressing takes place, it is unclear whether that would meet this claim even without any alleged infringer performing any action.  Ex. A, Andrews Decl., ¶¶176-178. The failure to recite any positive, active step in this purported method claims renders it invalid.

> b.      **'283 Patent, Term 2: "wherein, within the first network, addressing takes place on the basis of a function specific address component" and "wherein addressing within the first network takes place on the basis of the function-specific address components" (Claim 1 and 21)**

| GM's Construction | IV Construction |
|---|---|
| *"wherein, within the first network, addressing takes place on the basis of function-specific address components which excludes standard communication protocols such D2B or MOST"* | *Plain and ordinary meaning, no construction necessary* |

A patentee may disavow part or all of the ordinary and customary meaning of a term by setting forth its own definition of the term. The patentee's disavowal does not need to be explicit– it simply needs to be clear and reasonably inferred from the language of the specification. *Techtronic Indus. Co. v. Int'l Trade Comm'n*, 944 F.3d 901, 907 (Fed. Cir. 2019).

Here, the patentee made clear that the term "addressing . . . on the basis of a function-specific address components" (*see* '283 Patent, claims 1 and 21) does not include standard

communication protocols such as D2B or MOST. For instance, the specification states that these standard communication protocols may be "in addition to" the claimed addressing that uses the "function-specific address component." Ex. A, Andrews Decl., ¶179.

> Using optical data buses as a basis, *a first type of addressing* which uses the *function-specific address components* is provided within the data bus *in addition to the standard communication, for example D2B or MOST protocol*. In addition, the first addresses can be set up in the manner of the Internet Protocol so that it is possible within the data bus to perform addressing virtually as in the Internet, a part of this address, however, being the function-specific component. ('283 Patent, 2:46-54.)

> The *addressing in a network*, for example the data bus, **can take place**, on the one hand, *via an address component* which describes the local arrangement of the components along the data bus **such as** can be the case, *for example, in the D2B or MOST protocol and/or via a function-specific address component* which describes the function of a component or its subordinate function blocks. ('283 Patent, 3:7-13).

As shown in the quotes above, rather than describing addressing based on D2B and MOST protocols as being exemplary or included within the meaning of the claimed "addressing . . . on the basis of a function-specific address," the specification consistently refers to them as separate and distinct.

By using the phrase "in addition to," or referring to them in the conjunctive as "and/or," the '283 Patent is defining the purported invention of addressing on the basis of a function-specific address components first, and standard communication protocols such as D2B and MOST second (*i.e.*, as falling within an entirely separate genus). Thus, the patentee is clear that the term "addressing . . . on the basis of a function-specific address component" is something other than addressing using the D2B or MOST protocols. Ex. A, Andrews Decl., ¶¶181-182.

The patentee has disavowed any embodiment in which the terms "wherein, within the first network, addressing takes place on the basis of *function-specific address components*" and "wherein addressing within the first network takes place on the basis of the *function-specific*

*address components*" encompass addressing using only standard communication protocols such as D2B or MOST. *Techtronic*, 944 F.3d at 907 (Fed. Cir. 2019) ("But where the inventor has clearly set forth a different definition of a claim term, or has manifested that the invention does or does not include a particular aspect, that intention 'is regarded as dispositive.'") (citing *Phillips*, 415 F.3d at 1316).

      c.      **'283 Patent, Term 3: "2. Method according to claim 1, wherein a component of the first network registers a communication with the second network with the at least one particular component which communicates with the second network . . . " (proposed by GM; Claim 2)**

| GM's Construction | IV Construction |
|---|---|
| *Indefinite* | *Plain and ordinary meaning, not indefinite* |

Claim 2 is indefinite for several reasons. First, the claim references components and operations that are not described in the specification and have no clear meaning. For example, the claim recites that "a component of the first network" apparently "registers a communication with the second network." However, the patent specification does not describe any such "registration." The only "register" the '283 Patent describes is a central register that stores various network addresses for the components.

> The network master 2 stores all address components or addresses assigned to the components 2 to 6 in its central register 10 from which the other components 3 to 6 can interrogate the total system configuration. ('283 Patent, 7:3-6)

Nowhere is there any description that a component on the first network can "register a communication with the second network," much less do so by registering with "the at least one particular component which communicates with the second network." Ex. A, Andrews Decl., ¶¶183-184. It is therefore unclear what it means to "register a communication" in the context of claim 2.

In addition, the claim requires that "a component of the at least one particular component, with the internal address from the first network, enables communication with an external IP address and thereupon sets up communication with the second network." However, this "component" of the "at least one particular component" is also not described in the specification and is unclear from the claim. It is thus unclear what this "component of a component" comprises, which appears to be inconsistent with the specification.

For example, Figure 1 illustrates a network that includes five "components" 2-6:

> FIG. 1 shows a system which is used, for example, in motor vehicles. A number of components 2 to 6 are connected via a data bus 1. One component is a network master 2, i.e. a control device, which is connected to the other components, the control devices 3 to 6, via the data bus 1. Ex. A, Andrews Decl. at Ex. 5, '283 Patent, 5:63-67.

Within these components the specification describes various function blocks 8, 9, 11, 12, and 17, but these function blocks are specifically described as individually addressable elements or functions of the components 2-6. *See id.* at 7:16-26, Figure 1. The '283 Patent specification thus does not resolve the ambiguity created by the "components within the components" language. Ex. A, Andrews Decl., ¶¶185-186.

## B.     '771 Patent

The '771 Patent relates to "providing a mobile wireless access point for use with high-speed wireless devices." Ex. D, '771 Patent, 1:5–7. Figure 2 illustrates Mobile Hotspot System ("MHS") 40 for accomplishing this objective.
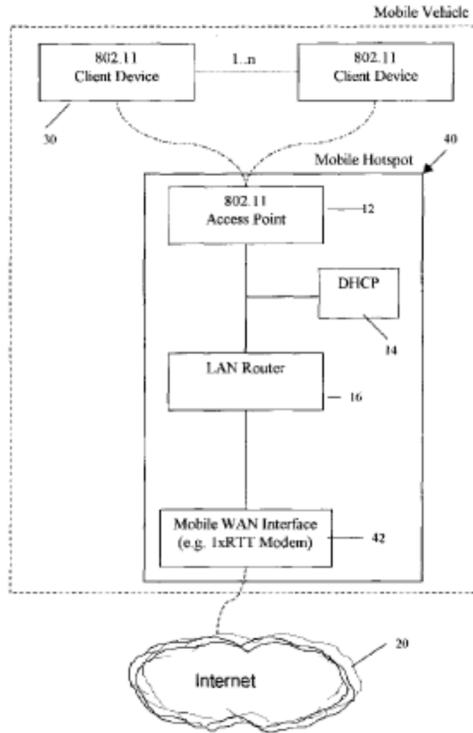
The MHS 40 includes access point 12 for connecting with client devices 30 and mobile long-range wireless ("WAN") interface 42 for establishing an Internet connection. *Id*. at 3:37–42. Mobile WAN interface 42 allows MHS 40 to be deployed in a moving vehicle. *Id.* at 3:42–44. A Local Area Network ("LAN") Router 16 directs traffic between access point 12 and mobile WAN interface 42. *Id.* at 3:33–34, 4:1.

a.     **'771 Patent, Term 1, "a Local Area Network (LAN) routing system…" (Proposed by** IV-All asserted claims)

| Term | GM Proposal | IV Proposal |
|---|---|---|
| "a Local Area Network (LAN) routing system managing the data path between said wireless access point and said Internet access interface" | *Plain and Ordinary meaning* | *A system that communicates data between the access point and the Internet access interface, and manages the data path therebetween by controlling client devices' access to the Internet and by controlling access to the client devices from the Internet* |

The Court should adopt plain and ordinary meaning and reject IV's proposed construction. This term is not difficult or too technical in nature such that a construction would help the jury's

understanding of it. IV's proposed construction also reads language into the claims that does not

exist and is inconsistent with the plain and ordinary meaning. The claim language refers to

"managing the data path" between the wireless access point and internet access interface, but IV's

proposed construction adds a further requirement that the system manage the data path "by

controlling client devices' access to the Internet and by controlling access to the client devices

from the Internet." IV's proposed construction is also inconsistent with its agreed construction of

"Internet access." IV agreed that the term "Internet access" refers to the ability to send and/or

receive information via the internet and thus the claims encompass devices that only send or only

receive information via the internet. By contrast, IV's construction of the LAN routing system

term requires controlling both access to (sending) and access from (receiving) the internet and thus

would not be met by devices that only send or receive via the internet.

> b.      '771 Patent, Term 2, "without the need to access an external
> service controller server" (Proposed by GM-all asserted claims)

| Term | GM Proposal | IV Proposal |
|---|---|---|
| "without the need to access an external service controller server" | *Without the need to connect to an external server before enabling a client device to access the internet* | *Plain and Ordinary meaning* |

The main issue is what the term "external service controller server" means. The term does

not appear anywhere in the specification of the '771 Patent. Rather, it was added during

prosecution. Specifically, applicant added the phrase "without the need to access an external

service controller server" to distinguish the alleged invention from the Kokkinen prior art

publication, Ex. E, US 2002/0073240A1, '771 File History, 11/30/07 Response to Office Action,

at 2:

> Applicant has a LAN router 16 that connects the wireless access point 12 to the
> Internet Access Interface 42 which in Figs. 1 to 4 is a long-range wireless Internet

Interface or WAN. There is no service controller or auxiliary server required as in Kokkinen. Applicant's system is, thus, capable of standalone operation unlike the system of Kokkinen. Claim 1 claims stand-alone operation as well as not having a requirement for an external server.

Applicant's statements are clear and unmistakable that the added language "without the need to access an external service controller server" means the applicant's claimed system has no external service controller or auxiliary server between the internet access interface  service controller or auxiliary server and accesses the internet without accessing an external server. GM's proposed construction flows directly from the applicant's clear definition for the "external service controller server." *SkinMedica, Inc. v. Histogen, Inc.*, 727 F.3d 1187, 1195 (Fed. Cir. 2013) ("When construing claim terms, we first look to, and primarily rely on, the intrinsic evidence, including the prosecution history and the specification — which is usually dispositive.").

GM's proposed construction is further confirmed by the other requirement the applicants added to the claims to distinguish Kokkinen (*i.e.*, that the "mobile wireless hotspot system is a stand-alone system"). Ex. E, '771 File History, November 30, 2007 Response to Office Action, at 2. A "stand-alone system" does not connect to any external or auxiliary server in order to access the Internet. *See* Ex. D, Fig. 2 (above on page 10).

### C.      '318 Patent

The '318 Patent general relates to sharing a communications channel in a manner that seeks to satisfy the needs of all of the applications based on the particular needs of the application—*e.g.*, quality of service. Ex. F, '318 Patent, 1:63-65. The patent associates each application with a different class of service, where each class of service "is associated with one or more quality-of-service parameters (e.g., minimum throughput, maximum latency, etc.)." *Id*. at 1:65-2:2. When a station is able to transmit over a shared communication channel, it is able to send multiple frames in a single "transmission opportunity"—which was known in the art as "bursting." *Id*. at 2:3-8.

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The '318 Patent "effectively apportions access to the shared-communications channel by regulating different degrees of bursting" "based on the class of service associated with the application." (*Id*.)

<div align="center">

**a.      '318 Patent, Term 1 "transmit opportunity"**

</div>

| GM's Construction | IV Construction |
|---|---|
| *Indefinite* | *Plain and ordinary meaning, no construction necessary* |

Claims 1, 3-5, 8, and 10-12 are indefinite because the term "transmit opportunity" does not "inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus Inc. v. Biosig Instruments, Inc*., 572 U.S. 898, 910 (2014). That term does not appear in the specification and was only added during prosecution after several rejections, at which point the applicant argued the term was used by the IEEE and "generally refers to the maximum amount of time a station can occupy a channel, each transmit time delineated by a start time and maximum duration." Ex. G, '318 Patent File History, 6/19/2008 Response to Non-Final Office Action, at 8; Ex. B, Hansen Dec., ¶41. However, as explained below, these statements in the context of the patent, prosecution history, and knowledge of a person of ordinary skill in the art ("POSITA") created more questions than answers.

First, "*transmit* opportunity" did not have a well-known understanding in the art and was not used in the IEEE standards. Instead, a similar phrase, "*transmission* opportunity" (abbreviated as TXOP) was known at the time to IEEE 802.11 standards contributors in the context of 802.11. Ex. B, Hansen Decl., ¶¶42, 44; Ex. 2. *Transmission* opportunity had a definition in the IEEE that was nearly identical to what the applicant stated in the prosecution history for *transmit* opportunity:

<div align="center">11</div>

> The EPC includes a time allocation management entity (TAME) that allocates *transmission* opportunities (TXOPs) to ESTAs. ***TXOPs have defined starting times and maximum durations.*** ESTAs make local decisions about which MPDUs to transmit during each TXOP

Ex. B, Hansen Decl., ¶¶44, 45 (citing additional examples).

The evidence shows that there was no standard usage of the term ***transmit opportunity*** in the IEEE at the time of the invention and that these two phrases are distinct. Ex. B, Hansen Decl., ¶46. While the terms ***transmit opportunity*** and *transmission opportunity* appear similar, the applicants specifically chose to use the term ***transmit opportunity*** in prosecution after earlier claims that did not use the term were rejected, even though *transmission opportunity* is in the patent specification. Indeed, the specification uses the term "*transmission* opportunity" multiple times. Ex. F, '318 Patent, 2:3-8, 3:40-46. Thus, the applicant was aware of the term *transmission* opportunity but choose to use the term ***transmit*** opportunity instead to attempt to distinguish the prior art. *Bd. of Regents of the Univ. of Tex. Sys. v. BENQ Am. Corp.*, 533 F.3d 1362, 1371 (Fed. Cir. 2008) ("Different claim terms are presumed to have different meanings.").

In addition, the amended claims in the '318 Patent refer to ***transmit opportunity*** as "correspond[ing] to a length of time during which the transmitting station ***will*** transmit data frames." This meaning is clearly different from the meaning of *transmission opportunity* as known by a POSITA since it does not include a starting time nor does it include a maximum duration. It is also different than the statements of what the term "generally refers to" made in the prosecution (*i.e.*, "maximum amount of time a station ***can*** occupy a channel").

**b.      '318 Patent, Term 2 "wherein the transmit opportunity is commenced with a control frame" (Claims 1, 8)**

| GM's Construction | IV Construction |
|---|---|
| *Indefinite* | *Plain and ordinary meaning, no construction necessary* |

If the term "transmit opportunity" is construed to mean, or be similar to, the language the applicant used in the prosecution history (*i.e.,* "generally refers to the maximum amount of time a station can occupy a channel, each transmit time delineated by a start time and maximum duration"), then the use of that term in the phrase "wherein the transmit opportunity is commenced with a control frame" in claims 1 and 8 would fail to provide a POSITA with the meaning and scope of the claim with any reasonable certainty.

For instance, a POSITA would not understand how to determine if any particular "control frame" has "commenced" a "maximum amount of time a station can occupy a channel, each transmit time delineated by a start time and maximum duration." Ex. B, Hansen Decl., ¶48. Each particular time a channel is occupied is different. In other words, the maximum amount of time a station *can* occupy a channel does not correspond to transmitting in the channel, which could be commenced by a control frame or otherwise. Even the language the Applicant provided to the Patent Office refers to another event—the "transmit time"—having a start time and end time.

Because the term "*transmit opportunity*" is never used in the '318 patent, it fails to provide guidance as to the meaning of commencing a "*transmit opportunity* . . . with a control frame." Indeed, the specification's sole reference to a control frame provides no discussion of the purported prosecution definition of a *transmit opportunity* (*i.e.*, a maximum time a station can occupy a channel or maximum durations). *See* Ex. F, '318 Patent, 3:1-5, *see also* 5:11-33, FIG. 4; Ex. B, Hansen Decl., ¶49.

### D.      '004 Patent

The '004 patent generally relates to vehicle networks, specifically vehicle internetworks, or networks that intercommunicate with other networks, and that can be configured automatically (such as when new network elements are added). The asserted claims (68 and 70) concern a multiple bus system in which 1) each bus uses a different protocol; 2) each of the separate buses

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have separate network elements connected to them; and 3) when the network is formed, the "gateway node" provides a "bridge" between the two buses to "pass messages" between them. The '004 patent explains that the "bridge function includes both enabling messages to be passed from one network to another, and blocking messages where access is unauthorized." Ex. A, Andrews Decl. at Ex. 1, '004 Patent, 18:21-24.)

### a.    '004 Patent, Term 1: "automatically forming a network of the plurality of network elements" (Claim 68)

| GM's Construction | IV Construction |
|---|---|
| *"automatically assembling and configuring the plurality of network elements to communicate with one another"* | *Plain and ordinary meaning* |

The '004 Patent does not expressly describe "automatically forming a network." Instead, it describes "automatically" *configuring* a network. Ex. A, Andrews Decl., ¶¶110-111; '004 Patent 4:13-30. Specifically, the '004 Patent uses the term "automatic" with reference to a plurality of network elements in describing "***automatically assembling and configuring*** the plurality of network elements in response to the node information." *Id.* at 9:64-66; *see also* 9:30-37 ("In response to the node information the network elements are automatically assembled and configured 406."); Fig. 4. The patent is also directed toward adding various components to network (assembling and configuring). Ex. A, Andrews Decl., ¶¶112-113; Ex. 5, '004 Patent 4:13-22. Thus, a POSITA would have understood "forming a network" to involve both assembling the components and configuring them. Moreover, the ordinary and customary meaning of the word "network" is a system in which elements are able to communicate with one another. Ex. A, Andrews Decl., ¶114. A POSITA would therefore understand that "forming a network of elements" as used in the '004 Patent results in the elements being able to communicate with one another.

The plain language of claim 68 supports GM's construction. The claim recites "coupling at least one network element of *the assembled plurality of network elements* to a remote computer located outside of the motor vehicle; and remotely controlling, at the remote computer, at least one function of *the assembled plurality of network elements*." There is no antecedent basis for the term "the assembled plurality of network elements." There are multiple groups of network elements including: "a first set of network elements connected to the first vehicle bus"; "a second set of network elements connected to the second vehicle bus;" and of course, the combined "plurality of network elements." Ex. A, Andrews Decl., ¶117. It is therefore unclear which plurality of network elements are the "assembled plurality of network elements." Thus, either a POSITA would have understood that forming the network required "assembling" or the claim is indefinite because it is unclear to what "the assembled plurality of network elements" refers. *See Imperium (IP) Holdings, Inc. v. Apple, Inc.*, 920 F. Supp. 2d 747, 759 (E.D. Tex. 2013) (quoting Manual of Patent Examining Procedure § 2173.05(e) (8th ed., rev. 8, July 2010) ("A claim is indefinite when it contains words or phrases whose meaning is unclear. The lack of clarity could arise where a claim refers to 'said lever' or 'the lever,' where the claim contains no earlier recitation or limitation of a lever and where it would be unclear as to what element the limitation was making reference.")

Claim 68 also recites a "method for internetworking"—which a POSITA understands is the process of connecting different networks by using intermediary devices (here the gateway). Ex. A, Andrews Decl., ¶115. The gateway node acts as a bridge between the vehicle busses such that it passes messages between the vehicle buses connecting the sets of network elements that are part of the "automatically form[ed] network." As such, a POSITA would understand that "forming

a network" in the context of claim 68, means assembling and configuring the network elements so that they can communicate (*i.e.*, "pass messages) to one another. *Id.* at ¶116.

> **b.**      **'004 Patent, Term 2: "the assembled plurality of network elements" (Claim 68)**

| GM's Construction | IV Construction |
|---|---|
| *Indefinite* | *TBD[2]* |

As explained above for the prior limitation, the term "***the*** assembled plurality of network elements" appears twice in claim 68 of the '004 Patent, each time without antecedent basis. "[A] claim could be indefinite if a term does not have proper antecedent basis where such basis is not otherwise present by implication or the meaning is not reasonably ascertainable." *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1249-50 (Fed. Cir. 2008). Here, there are multiple groups of network elements including: "a first set of network elements connected to the first vehicle bus"; "a second set of network elements connected to the second vehicle bus;" and of course, the combined "plurality of network elements." Ex. A, Andrews Decl., ¶¶117-118. It is therefore unclear which plurality of network elements are the "assembled plurality of network elements." *Imperium (IP) Holdings*, 920 F. Supp. 2d at 759 (quoting Manual of Patent Examining Procedure § 2173.05(e) (8th ed., rev. 8, July 2010). Thus, either a POSITA would have understood that "automatically forming a network of the plurality of network elements" required at least "automatically assembling the plurality of network elements" or the claim is indefinite.

### E.      '356 Patent

The '356 Patent purports to describe "a new technique for uplink channel control that uses a feedback scheme as a substitute for the absence of channel reciprocity." Ex. C, Min Decl. at Ex.

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[2] This term has was added during the claim construction process.

7, '356 Patent, 2:12-15. As described in the '356 Patent's background section, "[c]hannel reciprocity give equipment the ability to *derive information about uplink channel conditions from downlink channel conditions* based on signals received by the user equipment (UE)." *Id.* at 1:23-26 (emphasis added[3]). However, this information is not always available because channel reciprocity cannot be guaranteed. The '356 Patent claims to address this specific issue by establishing an "active feedback control" between a base station and user equipment (UE). *Id.* at 2:16-17. This is supposedly accomplished by a system whereby "a UE allocates a time slot for a beacon signal separated from the time slots for data in a frame. A second time slot is allocated within the frame for the base station to transmit a control signal in response to the beacon signal. The control signal instructs the UE to adjust a transmission parameter." *Id*. at 2:29-34.

> a.   '356 Patent, Term 1, " . . . receive feedback information . . ." / (Claims 1 and 22)

| Term | GM's Construction | IV Construction |
|---|---|---|
| "the processor is further configured to receive feedback information from a downlink control channel"/ "receiving, by the UE, feedback information from a downlink control channel" | *"the processor is further configured to receive information in response to the signal sent over the uplink physical control channel from a downlink control channel"/"receiving, by the UE, information in response to the signal sent over the uplink physical control channel from a downlink control channel"* | *Plain and ordinary meaning* |

GM's construction tracks the purpose of the "feedback scheme" addressed by the '356 Patent and helps the jury understand that "feedback information" in the claims refers to information received in response to the signal sent over the uplink control channel from a downlink control channel. Ex C, Min Decl., ¶88. In contrast, by proposing plain and ordinary meaning, IV

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[3] All emphasis is added unless otherwise noted.

seeks to improperly broaden the construction of "feedback information" to also encompass information being sent in response to information sent on the shared data channels.

As described above, the '356 Patent addresses the specific issue of providing a substitute for channel reciprocity. *Id.* at ¶¶88-90. In particular, the '356 Patent states that:

> Embodiments of the invention allow a terminal to transmit the uplink physical channel control signal (UL_Beacon) independently from the uplink physical channel. ***Therefore, the implementation of closed loop feedback may operate in the absence of an uplink physical channel.*** Ex. C, Min Decl. at Ex. 7, '356 patent, 2:24-28 .
>
> ***A UL_Beacon signal may be combined with a physical layer common control channel (PLCCH) to form a feedback system.*** . . . The PLCCH carries feedback information to the UEs that are transmitting UL_Beacon signals. *Id.* at 2:36-46.
>
> When pathloss reciprocity is not available, ***the combination of an uplink physical channel control signal with a downlink feedback channel*** may be used to keep the terminal informed of the condition of the uplink channel. The uplink physical control signal is referred to herein as an "Uplink Beacon" (UL_Beacon). *Id.* at 4:35-40.
>
> The system may implement a closed loop control system, in which ***the base station detects the received power and/or other channel information from the UL-Beacon, and send controlling commands back to each terminal to keep the terminal informed of the channel conditions observed in the base station***. *Id.* at 4:55-60.

Ex C, Min Decl., ¶¶88 (citing Ex. 7, '356 Patent, 4:55-60). As the above excerpts clearly indicate, the feedback information is received in Physical Layer Control Channel (PLCCH) (*i.e.*, the claimed "to receive feedback information from a downlink control channel") by the UE in response to sending the uplink physical channel control signal (UL_Beacon) (*i.e.*, the claimed "to send a signal over the uplink physical control channel") by the UE. *Id.* at ¶89. The only feedback information that the '356 Patent discusses is the PLCCH signal received by the UE in response to sending a control signal (*i.e.*, UL-Beacon) over the uplink physical control channel. *Id.* In other words, the '356 Patent does not discuss any feedback information in response to the data sent over the physical uplink shared data channel. *Id.* Accordingly, GM's construction should be adopted.

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**F.** **'158 Patent**

The '158 Patent is entitled "Large dynamic range cameras." The invention "relates generally to optical devices and more particularly to expanding the dynamic exposure range in digital cameras." Ex. A, Andrews Decl. at Ex. 3, '158 Patent, 1:26-28. The '158 Patent describes and claims a digital camera device that uses multiple optical components and associated sensors (*e.g.,* cameras) to capture portions of the same image using different exposure times (integration times). *Id.* at Abstract.  The images are then combined into a single image of the object. *Id.* at 8:63-9:8. By using images that have different integration times, the exposure of the combined image is expanded and underexposed and overexposed areas are reduced. *Id.* at 9:7-8.
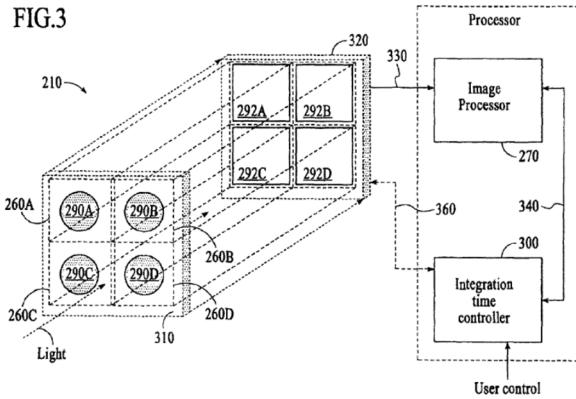
> **a.** **'158 Patent, Term 1, "integration time" (Proposed by GM – all asserted claims)**

| Term | GM Proposal | IV Proposal |
|---|---|---|
| "integration time" | *The time electrical charge is stored or accumulated when a sensor is exposed to light* | *Plain and Ordinary meaning* |

The term integration time appears in all asserted claims. For example, claim 1 refers to "a processing component configured to control an integration time of each sensor." The term "integration time" should be construed consistent with its well-known meaning to refer to the time electrical charge is stored or accumulated when a sensor is exposed to light. The '158 Patent explicitly defines the "integration time" as the time the sensor accumulates electrical charge: "The amount of integrated photo-charge is directly related to the time the image sensor collects and

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integrates signal from the scene. This is known as integration time." *Id.* at 4:3-6. A POSITA would understand that the term "integration time" had this well-known meaning at the time the '158 patent was filed. Ex. A, Andrews Decl., ¶¶119-120. This well understood meaning of "integration time" is echoed in the prior art. *See, e.g., id.* at Ex. 24, U.S. 6,097,021 at 2:26-37 ("An optical sensor generally requires a finite amount of time in which to produce a usable electrical signal in response to electromagnetic energy striking the photodetector. This time period is the integration period and can vary from as little as a few seconds to minutes in duration."); Ex. J at 3 ("Integration" = "[t]he accumulation of photo-generated charge within the pixels of a CCD image sensor," "Integration time"= "The time or the proportion of the operating cycle of the CCD in which charge is accumulated"); Ex. A, Andrews Decl., ¶¶121-126.

GM's proposed construction should be adopted over plain and ordinary meaning to clarify the term "integration time" and to avoid juror confusion. *See, e.g., Kroy IP Holdings, LLC v. Safeway, Inc.,* No. 2:12-cv-800-WCB, 2014 WL 3735222, at *2 (E.D. Tex., July 28, 2014) (stating court will consider construction that assists jury in understating terms). The '158 Patent includes claims that refer to the "integration time" of multiple sensors and also to combining data from multiple sensors to form a single image, sometimes within the same claim. *See, e.g.*, claim 9 ("wherein the processing component is configured to determine an integration time of each channel" and "wherein the processing component is configured to combine data from the plurality of channels received to provide an image"). Providing a construction of "integration time" clarifies that the term refers to the charge being stored when a sensor is exposed to light, and assists the jury in understanding the "integration time" is not associated with the time it takes to integrate the data from different sensors into a single image. Ex. A, Andrews Decl., ¶¶127-128.

### b.    '158 Patent, Term 2, "an image capture device" (Proposed by GM – claim 1, 3, 15)

| Term | GM Proposal | IV Proposal |
|---|---|---|
| "an image capture device" | *A digital device with multiple sensors that each capture a portion of the same image* | *Plain and Ordinary meaning* |

The term "an image capture device" appears in claims 1, 3 and 15. GM's proposed construction of "an image capture device" should be adopted because the '158 Patent disclosure emphasizes that the invention relates to expanding the dynamic exposure range in digital cameras and distinguishes the invention from prior art devices that use a single sensor to capture a single-frame image. The "Technical Field" description states that "the following disclosure relates generally to optical devices and more particularly to expanding the dynamic exposure range in digital cameras." Ex. A, Andrews Decl. at Ex. 3, '158 Patent, 1:23-28. The Background section explains that the "dynamic exposure range" refers to the range of light that can be accommodated by an image sensor in a single frame of data. It explains that the range of a single sensor is limited (1:43-49) and the dynamic range of scenes with highly varying illumination have significantly greater dynamic ranges (1:49-54). Ex. A, Andrews Decl., ¶¶129-131. The Background section concludes by stating that "***there is a need for a digital camera in which the effective single-frame dynamic exposure range is expanded***." *Id.* at Ex. 3, '158 Patent, 2:40-42.

The '158 Patent purports to solve this "need" for an expanded single-frame dynamic exposure range by using multiple sensors to image the scene at different integration times. The '158 Patent indicates that "[d]igital camera systems and methods are described below that provide an expanded effective single-frame dynamic exposure range." *Id.* at 3:39-41. The "digital camera systems and methods…generally include two or more camera channels" and "[e]ach channel includes an optics component and an image sensor." *Id.* at 3:41-45. The specification uses the term

"image capture" only once, to refer to "image capture" by a digital camera "using multiple camera channels" with each channel controlled during a single frame under an independent integration time. *Id.* at 3:47-50. A POSITA would understand from the '158 Patent disclosure that using multiple sensors with different integration times is critical to expanding the exposure range of a single-frame, and that this is the only method described for expanding the dynamic exposure range. Ex. A, Andrews Decl., ¶¶132-135.

By affirmatively describing the invention as a device that employs multiple sensors with different integration times to expand the dynamic range of an image, and distinguishing prior devices that employ a single sensor to capture an image, the '158 Patent clearly defines the image device to refer to digital devices that use multiples sensors that each capture a portion of the same image, and disavows devices where the dynamic range is limited to the range of a single sensor. A POSITA would understand that in order for the disclosed device to obtain a single-frame image with an expanded dynamic range, each of the sensors must image at least a portion of the same scene using a different integration time. Otherwise, the device is exactly the type of device criticized in the '158 Background—a device that images a single scene using a single sensor that has a limited dynamic range. *Id.* at ¶¶136-140. Accordingly, the Court should construe the term "an image capture device" -- consistent with the '158 Patent disclosure -- to refer to a digital camera device with multiple sensors that each capture a portion of the same image. Interpreted otherwise, the claims would cover digital camera devices that do not expand the dynamic range and are criticized as in "need" of improvement by the '158 Patent. *See, e.g., MPHU Tech. Inv., LLC v. Ricoh Americas Corp*, 847 F.3d 1363, 1377 (Fed. Cir. 2017) ("When the specification distinguishes the prior art, the invention should not be construed to encompass the prior art features."); *Campbell Soup Co. v. Gamon Plus, Inc.*, 2021 WL 3671366, *4 (Fed. Cir. August 19,

2021). A POSITA would understand that the "image capture device" disclosed and claimed is a camera device that employs multiple sensors that each capture a portion of the same image. Ex. A, Andrews Decl., ¶141.

> ### c. '158 Patent, Term 3, "an interface…." (Proposed by GM – all asserted claims)

| Term | GM Proposal | IV Proposal |
|------|------------|-------------|
| "an interface" | *A user device or connection external to the image capture device* | *Plain and Ordinary meaning* |

GM's proposed construction of "interface" in dependent claim 3 is supported by the claim language and consistent with the specification. Claim 3 refers to "an interface" that is "configured to receive the integration time of each sensor ***as an input to an image capture device.*** As discussed above, and clear from claim 1, the image capture device is a digital camera that includes a "plurality of sensors," a "plurality of optics components," and "a processing component." To provide an "***input to***" the image capture device the "interface" must necessarily be external to the image capture device. As a matter of plain English, an interface cannot provide an "input to" another object when it is already inside or part of that object. *See, e.g.*, *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1090 (Fed. Cir. 2003) ("[T]he construction of [the term] is principally informed by the plain language and surrounding context of the claims themselves.").

The '158 Patent confirms that the "interface" that receives the integration time as an input to the image capture device is external to the device and allows the user to input the integration time for the sensors. For example, the specification states that "[t]he integration time for each channel can be automatically controlled in response to a ***user input.***" Ex. A, Andrews Decl. at Ex. 3, '158 Patent, 3:50-53. Figure 1 describes a conventional digital camera that includes an "interface" 132—an external shutter button that can be depressed by the user. *Id.* at 5:51-6:2, Fig.

1 Similarly, Figure 2 describes a digital camera embodiment of an invention that includes an external user "interface" 232 represented as a shutter button. *Id.* at 6:43-53. In both cases, the external user interface is described as an "input device." *Id.* at 6:37-42, 7:4-9. Figures 8 and 10 likewise depict an external user interface (shutter button) and are described as having "a peripheral user interface" that may include "one or more additional input devices." *Id.* at 11:46-54; 12:28-37. Finally, Figures 3-6 illustrate a "user control" external to the digital camera subsystem. Accordingly, the claim language and specification are clear that "an interface" in claim 3 is "a user device or connection external to the image capture device."

### G.       '475 Patent

The '475 Patent is entitled "Device, system and method for controlling speed of a vehicle using a positional information device." Similarly, the Abstract, Technical Field and Summary of the Invention clearly state that the entire disclosure relates to "devices, systems, and methods for controlling a speed of a vehicle using a positional information device, e.g., a global positioning (GPS) devices." Ex. A, Andrews Decl. at Ex. 7, '475 Patent, 1:21-27. The Patent explains that even though GPS devices are "everywhere…[i]t is quite common for a driver to be unaware that he was violating the speed limit" because "speed limits change quite rapidly." *Id.* at 1:51-53. The '475 Patent addresses this problem by proposing "a device, system and method for controlling the speed of a vehicle" an enabling "a position information device, e.g., a GPS (global position system) unit, to alert a user if they are violating a local speeding limit." *Id.* at 2:16-17; *see also* Fig. 3.

> **a.       '475 Patent, T**erm 1, "violation" (proposed by GM-all asserted claims)

| Term | GM Proposal | IV Proposal |
|---|---|---|
| "violation" | *Non-compliance with a traffic law concerning vehicle speed* | *Plain and ordinary meaning.* |

The asserted claims of the '475 Patent all recite a "method," "medium," or "device" for "notifying a recipient of a violation by a driver of a vehicle." GM originally proposed a construction for the term "violation" consistent with its ordinary meaning – non-compliance with a government law, rule or regulation. But upon close scrutiny, the '475 Patent clearly and unmistakably defines the term violation to refer to non-compliance with an applicable law relating to vehicle speed, and disavows other violations. This can be seen from the Title, Abstract, the Technical Field and Summary of the invention which all describe or state that the "present disclosure" concerns vehicle speed. The '475 Patent is entitled "Device, system and method for controlling *speed of a vehicle* using a positional information device." The Abstract similarly states that "[a] device, system and method for controlling *speed of a vehicle* are provided." Further, the '475 specification consistently states that the "present disclosure" involves the speed of a vehicle. The '475 Patent describes the "Technical Field" stating that "[t]he *present disclosure* relates generally to navigational or positional information systems, and more particularly, *to devices, systems, and methods for controlling a speed of a vehicle* using a positional information device." *Id.* at 1:21-27. Finally, the '475 Patent invention "Summary" specifically states that the "present disclosure" enables alerts based on vehicle speed and communicating a vehicle's speed:

## SUMMARY

A device, system and method for controlling speed of a vehicle are provided. The present disclosure enables a position information device, e.g., a GPS (global position system) unit, to alert a user if they are violating a local speeding limit. The present disclosure further provides for a system and method for communicating a subject vehicle's speed to a central server where it can be utilized to analyze traffic congestion patterns or notify selected companies or individuals.

*Id.* at 2:12-22. The repeated, consistent statements that the invention involves controlling the speed

of a vehicle and that the "present disclosure" relates to controlling the speed of a vehicle are clear

and unambiguous. Consequently, the term "violation committed by a vehicle" likewise refers to

vehicle speed. "When a patentee 'describes the features of the present invention as a whole,' he

alerts the reader that 'this description limits the scope of the invention.'" *Pacing Techs., LLC v.*

*Garmin Int'l, Inc.*, 778 F.3d 1021, 1025 (Fed. Cir. 2015) (quoting *Regents of Univ. of Minn. V.*

*AGA Med. Corp.*, 717 F.3d 929, 936 (Fed. Cir. 2013)).

### H.     '608 Patent

T The '608 Patent purports to cover "a dual-preference matching system and method that

provides a system that is both location-based and preference-based to allow for a user to obtain

information about those persons, places and things that match the user's preferences and are within

a prescribed range." Ex. A, Andrews Decl. at Ex. 9, '608 Patent, 3:32-37; *see also* 3:41-58. The

'608 Patent describes the "present invention" as an improvement over prior art systems, which

admittedly taught providing general interest information to users about people, places or things

based only on the location of the mobile traveler (*e.g.*, GPS) or systems that inferred user

preferences "based on prior behavior or patterns of behavior, rather than explicitly asking the user

for preferences," to provide specific content (*e.g.*, targeted advertising).[4] Thus, the '608 Patent

alleges that the unique combination of location-based and user stated preferences sets the invention

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[4] For example, the patent observes that "other systems have attempted to use such GPS position information to provide location-based information," but these systems provide information of "general interest" as opposed to "specific expressed profile or preferences of the mobile traveler that will receive such information." *Id.* at 2:9-46. Further systems "have sought to use purchasing interest profiles of the user," but only "on an inferred or extrapolated preference," as opposed to a stated preference, and "such systems do not address situations wherein the preferences of the user change or where the user has not previously been interested in a particular service or good." *Id.* at *2*:47-67.

apart: "In particular, the present invention enables ***the user to enter and update its preference***

***information*** for a wide variety of goods, services and interests to allow the user to be notified of

only information on those persons, places and things that ***expressly match up with the user's stated***

***preferences***." *Id.* at 3:48-53.

> a.     **'608 Patent, Term 1, "first user preference" (proposed by GM -
> all asserted claims)**

| Term | GM Proposal | IV Proposal |
|------|-------------|-------------|
| "first user preference" | *a preference from a first user preference profile* | *Plain and ordinary meaning.* |

The "first user preference" term appears in the initial step of the claimed method for

matching users with information and involves "receiving a first user preference." After "receiving"

the preference, the method determines whether a set of attributes "satisfies the first user

preference." The '608 Patent defines the "user preference" that is used for matching as a preference

that comes from a first user preference profile. "When a patentee 'describes the features of the

present invention as a whole,' he alerts the reader that 'this description limits the scope of the

invention.'" *Pacing Techs.,* 778 F.3d at 1025 (quoting *Regents of Univ. of Minn.*, 717 F.3d at 936.

In particular, the '608 Patent states that the "present invention" uses a preference from a user

preference profile in the Summary of Invention:

> The ***present invention*** is an improvement over conventional means for providing
> information to users in that the system and method for providing information, which
> is accessible by the user, based on a location-based and ***preference-based system***
> ***that matches the specific expressed interests and preferences of a user*** with the
> profile of a person, place or thing is unique and an improvement over the prior
> art….
>
> In operation, ***a user will create a preference portfolio for various types of persons,***
> ***places and/or things*** preferably through the use of a wireless device that has GPS
> capabilities. The preferences may include additional information Such as: a
> distance range from the user, price, period of interest and the like….

> ***The system of the present invention thereafter accesses and reads the profiles of the persons, places and things to compare the user's preferences*** on the wireless devices. ***If any of the persons, places or things match-up with the expressed preferences of the user,*** then the user will be notified of those persons, places and things."

Ex. A, Andrews Decl. at Ex. 9, '608 Patent, 3:41-4:18; *see also* 8:22-43 ("The system and method of the present invention thereby allows users to indicate their preferences…."). The '608 specification further confirms that the "present invention" includes a "user preference profile." *Id* at 8:44-49. ("Referring to FIG. 3, an example of a user preference profile for food is shown. It is appreciated that the example of the user profile shown and disclosed is merely one example of the type of information that may be entered or contained in a user profile and that the present invention is not limited to any one embodiment."). Consistent with the described "invention" all instances of a "user preference" in the patent refer to one of the explicit preferences saved in a user preference profile. *See, e.g.*, *id.* at 8:2-3 ("requisite user preference profile"); *id.* at 9:17-18 ("the user may repeatedly modify the user's preference profile at any time").

Furthermore, it is clear from the detailed description of the invention and accompanying figures, the steps involved with matching the stated preferences of a user with the person, place or thing profile information (*e.g.,* merchant profile information) start with entering the user's preferences and saving them in a user preference profile. *See, e.g.*, *id.*, 8:22-25 ("The system and method of the present invention thereby allows users to indicate their preferences"); *id.* at 8:34-36 ("users and merchants may enter their preferences into the system in any known way); *id.* at 7:11-18 (the user's preference profile is stored on the mobile device or server), *id.* at 9:49-54; Fig 6 ("Input User Preference Profile"); Figs. 3, 4a. Based on this, a comparison of a specified attribute or preference of the user preference profile (*i.e.*, first user preference) with the merchant profile information determines if there is a match to send to the user. *See e.g., id.* at 9:57-67 ("If the

merchant matches the preference of the user in step 112, and the merchant is within the distance range selected by the user, then the user is notified of the merchant"); *id.* at Fig. 6 (Step 110 "Compare User Preference Profile with Merchant Profile").

Defendants' proposed construction helps the jury understand a critical aspect of the claimed invention: providing information on people, places and things that match one of the user's explicit preferences saved in the user preference profile. The claim language does not adequately convey this key purported innovation. Accordingly, Defendants' construction should be adopted.

**b.      '608 Patent, Term 2, "a geographic area limitation" (proposed by GM – all asserted claims)**

| Term | GM Proposal | IV Proposal |
|------|-------------|-------------|
| "a geographic area limitation" | *A geographic distance or shape supplied by a user for limiting the search for matching objects* | *Plain and ordinary meaning.* |

The term "geographic area limitation" appears in all asserted claims. Defendants' proposed construction is consistent with the description of the present invention and makes clear for the jury that "a geographic area limitation" is "a geographic distance or shape supplied by a user for limiting the search for matching objects."

The specification defines the present invention as one where the geographic limitation is a preference pre-selected by the user. As discussed above, the '608 patent states: "[t]he ***present invention*** is an improvement over conventional means for providing information to users in that the system and method for providing information, which is accessible by the user, based on a location-based ***and preference-based system that matches the specific expressed interests and preferences of a user*** with the profile of a person, place or thing is unique and an improvement over the prior art…. In operation, ***a user will create a preference portfolio*** for various types of persons, places and/or things preferably through the use of a wireless device … ***The preferences***

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***may include additional information such as: a distance range from the user***, price, period of

interest and the like….” Ex. A, Andrews Decl. at Ex. 9, '608 Patent, 3:41-4:18; *see also* 8:22-34

(“The system and method of the present invention thereby allows users to indicate their

preferences….[e]xamples of parameters that may be used include…the maximum distance that the

user is willing to travel”); *id.* at 14:55-59 (“when others come within their selected geography

distance to the particular site”); *id.* at Fig. 3 and 4A (user preference profile including “distance”

preference (*e.g.*, within 10 miles)). Thus, in contrast to prior art systems, the present invention

allows users to be notified and provided information of persons, places or things that expressly

match a user’s explicit preferences and are within a user’s prescribed geographic area. Although

the phrase “a geographic area limitation” does not appear anywhere in the specification, it is clear

from the specification that this term is referring to the specific distance or range specified by the

user to limit the matching results.

In addition, GM’s proposed construction will further clarify the term “geographic area

limitation” for the jury, thus avoiding potential juror confusion. *See, e.g., Kroy IP Holdings,* 2014

WL 3735222, at *2. GM’s proposed construction makes clear that the geographic area limitation

refers to a geographic limitation used in matching objects with the user’s explicit preferences and

includes area limitations defined by shapes as well as by linear distances. Without this clarity, the

jury may be confused and believe that geographic area limitation refers to some other a geographic

limitation, for instance a geographic limitation tied to the object being matched, or a limitation that

encompasses only linear distances. Defendants’ proposed construction is consistent with and

encompasses the different types of “a geographic area limitation” enumerated in dependent claim

5 (*e.g.*, “distance from the mobile device” or “geometric shape centered on the mobile device”).

Accordingly, Defendants’ construction should be adopted.

      c.        '608 Patent, Term 3, "substantially real-time updates" (claims 4, 10)

| Term | GM Proposal | IV Proposal |
|------|-------------|-------------|
| "substantially real-time updates" | *Indefinite* | *Plain and ordinary meaning* |

The phrase "receiving substantially real time updates of the location of the mobile device of the first user" in claim 3 is indefinite because it fails to inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus*, 572 U.S. at 910.

First, "receiving substantially real-time updates" is indefinite is purely subjective and neither the claims nor the specification provides any objective standard for ascertaining the scope of this term of degree. *See Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2005) ("When a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree.") (quoting *Seattle Box Co. v. Indus. Crating & Packing, Inc.*, 731 F.2d 818, 826 (Fed. Cir. 1984)). A POSITA would view this claim language as subjective because what might be considered substantially in real time to one POSITA may not be considered substantially in real-time to another. Ex. A, Andrews Decl., ¶213. Thus, whether an update is received "substantially" in real-time improperly depends 'on the unpredictable vagaries of any one person's opinion." *Intellectual Ventures I LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1381 (Fed. Cir. 2018) (quoting *Datamize*, 417 F.3d at 1350-51).

Second, the '608 specification provides no standard for assessing when an update is received substantially in real-time. The specification does not once use the term "real-time" to refer to receiving updates of the location of the mobile device. Ex. A, Andrews Decl., ¶212. Nor does it ever use the term "substantially," or any term of approximation or degree, in connection with the term "real-time." *See, e.g., id.* at Ex. 9, '608 Patent at 4:56-59 ("real-time GPS location-

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based systems"); *id.* at 8:1-5 ("the PDA can download…profile information in real time from the remote server"); *id.* at 13:12-15 ('the system may work with both real-time GPS location-based systems…"); *id.* at 14:49-53 ("Through the point of interest exchange, which preferably is incorporated into the system in real time for access by others, users may input information on their favorite spots…). The '608 Patent wholly fails to "provide objective boundaries for those of skill in the art" as to when an update is "substantially" received in real-time. *Intellectual Ventures*, 902 F.3d. at 1370–71 (citing *Halliburton Energy*, 514 F.3d at 1251. Accordingly, the term "receiving substantially real-time updates" is indefinite.

## I. '466 Patent

The '466 Patent describes a method in which control over scheduling uplink data transmissions in a Universal Mobile Telecommunication System (UMTS) cellular communication system is distributed between the UMTS radio access network (UTRAN) and a user equipment (UE). Ex. C. Min Decl. at Ex. 1, '466 patent, 1:20-26, 3:9-15, 5:54-67. The UTRAN provides a single physical allocation of radio resources to the UE. *Id*. at 9:29-36. The UE allocates these resources among different types of uplink signals with different quality-of-service ("QoS") requirements (*i.e.*, different "radio bearers," also referred to as queues or channels). *Id*. at 9:46-53.

The UTRAN provides the UE queue weights Stier/Sq for each of the radio bearers. *Id*. at 10:5-17. The queue weights Stier/Sq indicate a quality-of service level required for, or a priority level of, the data to be transmitted from that radio bearer. *Id*. at 8:64-9:18. The UE allocates the physical resources to the radio bearers based on their respective Stier/Sq parameters, so that higher priority radio bearers receive a greater proportion of the allocated resources than lower priority radio bearers. *Id*. at Fig. 6, 10:45-12:27 (resource allocation algorithm 600).

> a.      '466 Patent, Term 1: "First parameter," "second "parameter," "third parameter," and "fourth parameter" (Claims 1, 3, 6, 8)

| GM's Construction | IV Construction |
|---|---|
| *The first parameter," "second parameter," "third parameter," and "fourth parameter" are different parameters for a channel.* | *plain and ordinary meaning, no construction necessary* |

The first, second, third, and fourth parameters recited in claims 1, 3, 6, and 8, should be construed to clarify that these are four different channel parameters—*i.e.*, that each one is a different parameter for a channel.

Independent claims 1 and 6 recite the "first parameter," "second parameter," and "third parameter" as separate and different claim terms. Ex. C, Min Decl., ¶165. And each of dependent claims 3 and 8 recite all four parameters as separate and different claim terms. *Id*. As the Federal Circuit has consistently held, "[d]ifferent claim terms are presumed to have different meanings." *Bd. of Regents*, 533 F.3d at 1371; *see Applied Med. Res. Corp. v. U.S. Surgical Corp*., 448 F.3d 1324, 1333 n.3 (Fed. Cir. 2006) ("[T]he use of two terms in a claim requires that they connote different meanings. . . ."); *CAE Screenplates, Inc. v. Heinrich Fiedler GmbH & Co. KG*, 224 F.3d 1308, 1317 (Fed. Cir. 2000) ("In the absence of any evidence to the contrary, we must presume that the use of . . . different terms in the claims connotes different meanings."); *Bushnell Hawthorne, LLC v. Cisco Systems, Inc*., 813 Fed. App'x. 522, 526 (Fed. Cir. 2020) (construing "one or more IP addresses," "one or more second IP addresses," and "one or more third IP addresses" as referring to different IP addresses).

The claims themselves confirm that that the first/second/third/fourth parameters refer to different channel parameters. Ex. C, Min Decl., ¶¶165-168. Specifically, claim 1 recites "a *first parameter* corresponding to *each* of a plurality of channels." *Id.* at claim 1. That is, each channel has a *first parameter*, and each of those *first parameters* is received in a first transmission. *Id*.

This demonstrates that the applicant knew how to refer to the same parameter in different channels. *See id.* In contrast, the claim later recites "wherein resources are allocated for data of each channel having a *second parameter* above zero prior to another channel's data for transmission having a *third parameter* less than or equal to zero." *Id.* In view of the language concerning the *first parameter*, if the *second* and *third* parameters were the same parameter but for different channels, the claims would have stated "wherein resources are allocated for data of each channel having a *second parameter* above zero prior to another channel's data for transmission having a *[second] parameter* less than or equal to zero." *See id.* at ¶166. They do not, which confirms that they are different channel parameters. *See id.*

Furthermore, the specification confirms that these are four different channel parameters. Defendants' expert, Paul Min, provides a detailed description of the process described and claimed in the '466 patent. *Id.* at ¶¶165-168; *see also id.* at Ex. 1, 10:4-12:24. As shown therein, the four parameters of the claims map to four different parameters of the channels as shown in the table below:

| Claim Term | Specification Parameter |
|---|---|
| "first parameter" | Sq |
| "second parameter" | RAAUq' |
| "third parameter" | RAAUq'' |
| "fourth parameter" | FreeRAAU |

*Id.* at ¶165. Accordingly, as properly construed, the claimed "first parameter," "second parameter," "third parameter," and "fourth parameter" are four different parameters. Given the technical nature of the analysis and terms, a clarifying construction that these four parameters *"are different parameters for a channel"* would be beneficial to a jury.

b.      '466 Patent, Term 2, "wherein resources are allocated for data of each channel of a radio bearer having a second parameter above zero prior to another channel's data for transmission having a third parameter less than or equal to zero" (Claims 1 and 6)

| GM's Construction | IV Construction |
|---|---|
| *Plain and ordinary meaning* | *Plain and ordinary meaning, "wherein allocation of resources for the data of each channel of a radio bearer having a second parameter above zero is provided before the allocation for another channel's data for transmission having a third parameter less than or equal to zero"* |

This term in claims 1 and 6 of the '466 Patent should be construed according to its plain and ordinary meaning because the term is clear: "resources are allocated for data of each channel . . . prior to another channel's data for transmission." *Id.* at ¶¶169-170; '466 Patent, claim 1 at 13:66-14:2. In other words, the disclosed system allocates resources amongst each channel that has a certain parameter ("second parameter") above zero before it allocates to another channel having a different parameter ("third parameter") less than or equal to zero. *Id.* at ¶¶169-170.

IV's construction is confusing. *See id.* at ¶¶171-173. It introduces passive language, making the claim less understandable than the term itself—such as chancing "wherein resources are allocated for data" to "wherein allocation of resources for the data" for no apparent reason. It then keeps, verbatim, the clause "of each channel of a radio bearer having a second parameter above zero." Then it effectively changes "prior to" to the passive phrase "is provided below the allocation for," before finally reciting the remaining portion of the claim term.

| Claim Term | IV's Proposed Construction |
|---|---|
| wherein **resources are allocated** for data | wherein **allocation of resources** for **the** data |
| of each channel of a radio bearer having a second parameter above zero | of each channel of a radio bearer having a second parameter above zero |

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| Claim Term | IV's Proposed Construction |
|---|---|
| **prior to** | **is provided before the allocation for** |
| another channel's data for transmission having a third parameter less than or equal to zero | another channel's data for transmission having a third parameter less than or equal to zero |

There is simply no support in the specification or prosecution history to modify this term as IV proposes. *Id.* at ¶174.

### J.      '628 Patent

The '628 Patent claims a specific video recorder. The claimed video recorder has a processor; a buffer and a memory device, and the processor is configured to perform a series of steps during operation: (1) store video data in the buffer; (2) detect movement of a door latch of a vehicle; (3) attempt to detect a wireless key fob configured to provide authorization for an attempted vehicle access; and (4) transfer video data from the buffer to the memory *if and only if* the wireless key fob has not been detected.

### a.      '628 Patent, Term 1, "store video data in the buffer" (all asserted claims)

| Term | GM Proposal | IV Proposal |
|---|---|---|
| "store video data in the buffer" | *Store video data in a loop buffer for a predetermined time of at least a few seconds to several minutes* | *Plain and ordinary meaning* |

The '628 Patent clearly and unmistakably defines the term "buffer" to refer to a "loop buffer" and the phrase "store video data in the buffer" to mean store video data in a loop buffer for a predetermined time of a few seconds to several minutes. "When a patentee 'describes the features of the present invention as a whole,' he alerts the reader that 'this description limits the scope of

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the invention.'" *Pacing Techs.,* 778 F.3d at 1025 (quoting *Regents of Univ. of Minn.*, 717 F.3d at

936). Here, the "Brief Summary of the Invention" defines the invention in this manner:

> "***The video recorder of this invention*** can record 'backwards in time.' That is, ***this invention provides time-delayed video and audio data***. ***The video recorder stores video*** and audio ***data in a loop buffer***. ***The loop buffer stores video and audio data for a predetermined duration*** or elapse of time. Because the loop buffer stores anywhere from a few seconds to several minutes of video data, the loop buffer, at any one time, provides data from a time recently preceding the recorded event. ***The loop buffer thus provides both real-time and time-delayed video and audio data*** of the event captured by the camera." '

Ex. A, Andrews Decl. at Ex. 11, '628 Patent, 2:11-24. The Summary of Invention further reiterates

that "[t]his invention includes a loop buffer that stores video data: "[t]his invention discloses

methods and apparatuses for recording video data of an event.… A loop buffer also stores video

data of the event captured by the camera." *Id.* at 2:25-36; *see also* 3:53-62. Just like the Summary,

the description of the invention and the fact that the "loop buffer" provides the time-delayed video

of the invention is further reiterated and described as "this invention" in the detailed description.

*Id.* at 6:58-62; 7:9-19; 4:30-51 ("The video recorder 10 also includes the loop buffer 14. The loop

buffer 14 also stores video data 17 of the event captured by the at least one camera 18. The loop

buffer 14, however, provides time-delated video data of the event…Because the loop buffer 14

stores anywhere from a few seconds to several minutes of video data "). The detailed description

further defines the loop buffer as something that stores video data for a predetermined time of a

few seconds to several minutes by observing that "[a]s those of ordinary skill in the art understand,

the loop buffer 14 stores the video data 17 for a predetermined duration or elapse of time (typically

from a few seconds to several minutes)." *Id.* at 4:33-37.

The '628 specification refers to a loop buffer over 80 times and never once refers to any

other type of "buffer." The '628 patent even expressly incorporates by reference the description of

the "known" "operational and architectural concepts of loop buffers" as described in U.S. Patent

No. 6,598,155. *Id.* at 4:51-58. The incorporated '155 Patent describes "[a] loop buffer for storing and holding instructions executed within loops for digital signal processing" and provides operational and architectural details of the loop buffer, just as stated in the '628 patent specification. Ex. I, U.S. Patent No. 6,598,155. "The public is entitled to take the patentee at his word and the word was that the invention" includes storing video in a loop buffer for a predetermined time of at least a few seconds to several minutes. *Honeywell Int'l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006) (construing "filter" to mean "fuel filter").

### K.   '138 Patent

The '138 patent purports to cover a mobile station that uses an iterative scheduling algorithm with a running backlog counter to prevent low priority/importance services from becoming starved. *See* Ex. C, Min Decl. at Ex. 3, '138 Patent, Abstract. The '138 Patent states that "the UE 118 communicates data with a Node-B (base station) 122," which in turn, "communicates with a radio network controller (RNC) 124." *Id*. at 6:30-32. The '138 Patent also acknowledges that the RNC is responsible for communicating with the "core network domain 130." *Id.* at 6:36-37. The '138 Patent discloses an iterative scheduling algorithm for data packets where a running backlog counter increments between iterations for each radio bearer that could not transmit all of its data in a given iteration. *See id*. at 10:47-31. In sum, the '138 Patent generally describes a method for allocating transmission resources in each cycle where low priority queues use a runing_RAAU_delta variable to prevent certain queues from being permanently starved for resources.

> a.   '138 Patent, Term 1, "wherein the selection of the data occurs using a first iteration and a second iteration" (Claims 1 and 8)

| GM's Construction | IV Construction |
|---|---|
| *"wherein the selection of the data occurs by repeating the same steps twice"* | *Plain and ordinary meaning* |

GM's proposed construction is a clarification of the plain and ordinary meaning of the term to aid the jury in understanding what iteration means in the context of a computer implemented algorithm. *See* Ex. C, Min Decl., ¶175.

- The New IEEE Standard Dictionary of Electrical and Electronics Terms, which defines iteration as: "The process of performing a *sequence of steps repeatedly*" (*Id.* at Ex. 13, p. 668);

- The Dictionary of Materials and Testing, which defines iterate as: "To *repeatedly* execute a loop or *series of steps*" (*Id.* at Ex. 14, p. 229); and

- The Pocket Illustrated Dictionary of Engineering Terms, which defines iteration as: "Obtaining a result by *repeatedly performing the same sequence of steps* until a specified condition is satisfied" (*Id.* at Ex. 15, p. 174)

Ex. C, Min Decl., ¶¶176, 181. The specification uses iteration in the exact same way to describe the algorithm shown in FIG. 6, which repeats the same steps (605 - 675) in the first and second iterations to select to the transmission from the radio bearers:

> *Note that this algorithm is iterative and running_RAAU_delta is determined from the previous iteration of the algorithm.* Hence, although no limitation has been applied in the first iteration, on the second iteration the limitation of the number of queues in the previous iteration has meant that there are some queues that did not receive the number of RAAU that were originally determined.

*Id.* at ¶¶177-179; *id.* at Ex. 3, '138 Patent, 11:32-38, *see also* FIG. 6, 11:11-31.

Thus, a jury will benefit from further clarity that iterations as claimed in the patent involves performing the same steps twice.

> **b.** **'138 Patent, Term 2, "wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters, wherein in the second iteration, the selection of the data is based on buffered data for respective radio bearers" (Claims 1 and 8)**

| GM's Construction | IV Construction |
|---|---|
| *Indefinite* | *TBD*[5] |

As explained above, the term "iteration" means repeating the same steps. Ex. C, Min Decl., ¶¶182, 186. However, these claim terms in combination contradict that well understood meaning. *Id*. at ¶¶183-185. That is, when read together—the claim could be interpreted such that the first iteration and the second iteration are using *different* steps. *Id*. at ¶186. Thus, a POSITA would not have understood the "scope of the invention with reasonable certainty." *Id*. at 183; *Nautilus Inc. v. Biosig Instruments, Inc*., 572 U.S. 898, 910 (2014).

The '138 Patent specification does not describe iterations that select data using different steps. Ex. C, Min Decl., ¶¶186-187. Each iteration runs through the same steps, as shown in Figure 6. *See id*. at ¶187. This term is indefinite because the first iteration and second iterations involve different steps. *Id*. at 187. This result is illogical because iterations comprise performing the same steps. *See id.* at ¶¶182, 186; *see also* the discussion of "iteration" above. However, the claim language here referring to first iteration and the second iteration as involving different selections of data indicate that they are different algorithms. *Id*. at ¶¶185-186. However, this is inconsistent with the specification, which indicates that the inputs provided to each iteration of the process are updated in accordance with the preceding iteration, and that use both "received parameters" and "buffered data" in both iterations. *Id*. at ¶187; *id.* at Ex. 3, '138 Patent, 12:22-24.

At the very least, this term is indefinite because it is open to multiple interpretations of

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[5] This term was modified during the claim construction process

varying scope. Ex. C, Min Decl., ¶¶183-187. For instance, this term could mean that the data is selected based on different data that is buffered; it could mean that the data is selected based on the amount of the data that is buffered; or it could mean that the data is selected based on certain information associated with the data (*e.g.*, QoS requirements), which is buffered. *Id*. at ¶185.

The multiple possible interpretations render claims 1 and 8 confusing and ambiguous because on their face they would require different algorithms and would result in vastly different selections of data. *Id*. at ¶¶183-188. For example, the specification suggests at times that this term means that the data received from a given bearer is selected based on the received parameters. *Id*. at 184. However, at other times, this term means that the subset of bearers is selected based on the received parameters and the data are selected from these bearers. *Id*.; *id.* at Ex. 3, claim 1, 14:9-11.

## L.      Section 112, ¶6 Functional Claiming

Function language may be used when writing a patent term or claim. *See* 35 U.S.C. § 112(f)[6]; *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347–49 (Fed. Cir. 2015) (*en banc*). Specifically, §112(f) allows a structure to be claimed as a "means . . . for performing a specified function" and an act to be claimed as a "step for performing a specified function." *Masco Corp. v. United States*, 303 F.3d 1316, 1326 (Fed. Cir. 2002). There is a rebuttable presumption that § 112(f) applies when the claim language includes "means" or "step for" terms, and that it does not apply in the absence of those terms. *Williamson*, 792 F.3d at 1348 (Fed. Cir. 2015). "When a claim term lacks the word 'means, the presumption can be overcome and § 112, ¶6 will apply if the

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[6]    Prior to the AIA, means-plus-function claiming was codified in 35 U.S.C. §112, ¶6. The AIA version of §112, ¶6 has no substantial differences as compared to §112, ¶6. *See, e.g., Dyfan, LLC v. Target Corp.*, No. W-19-CV-00179-ADA, Claim Construction Order ECF No. 57 at 3 n.1. Hereafter, this brief will refer to §112(f).

challenger demonstrates that the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.'" *Id.* at 1349 (quoting *Watts v. XL Sys., Inc.*, 232 F.3d 877, 880 (Fed. Cir. 2000)).

When § 112(f) applies, it limits the scope of the functional term "to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof." *Williamson*, 792 F.3d at 1347. A "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *Id.* The corresponding structure "must include all structure that actually performs the recited function." *Default Proof Credit Card Sys. v. Home Depot U.S.A. Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005).

For § 112(f) limitations implemented by a programmed general-purpose computer or microprocessor, the corresponding structure described in the patent specification must include an algorithm for performing the function. *WMS Gaming Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). Computer-implemented means-plus-function claims are indefinite unless the specification discloses an algorithm to perform the function associated with the limitation. *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1319 (Fed. Cir. 2012). Here, many of the asserted patents include claim terms that are subject to construction under §112(f) and are indefinite because the claims involve functions implemented by a computer and the specification lacks any disclosure of an algorithm.

### a. '771 Patent ("local content module")

| Term | GM's Construction | IV Construction |
|---|---|---|
| "local content module that stores content that can be accessed by said client devices directly through said high-speed access point" | *Subject to §112(f); Indefinite* | *Plain and ordinary meaning* |

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The "local content module" language in Claim 4 of the '771 Patent is indefinite because the claimed function is performed by a computer and the specification contains no algorithm. The presumption that §112(f) does not apply is rebutted under both *Williamson* tests. First, the "local content module" phrase fails to recite sufficiently definite structure. The claim language is purely functional—"stores content that can be accessed by said client devices directly through said high-speed access point," and the addition of the introductory phrase "local content module" does nothing to change the functional nature of the phrase. The term "module" is a well-known nonce word that often functions as a substitute for "means" in the context of §112(f). *Williamson*, 792 F.3d at 1350. This is confirmed in the '771 specification, which uses the term "module" to describe a variety of different "modules" for performing different functions. *See, e.g.,* Ex. D, '771 Patent, 3:28-30, 63-66 ("DHCP module"); *id.* at 4:1-9 ("web server module" and "web cache module"); 4:26-29, 4:57-59 ("GPS module"); *id.* at 4:37-44 ("DNS module"); *id.* at 4:45-46 ("WAN Manager module"); 4:63-64 ("OSS Module"); Ex. B, Hansen Decl., ¶¶69-72. The phrase "local content" preceding the nonce word module does not refer to structure; it refers to the content that is stored and can be accessed according to the functional language of the claim. Ex. B, Hansen Decl., ¶73. More particularly, the '771 specification contains no description of any structure for the "local content module." It simply describes the functions performed by the LCM ("customizes the information presented to the user from the local web server module," "gathers position information from the onboard GPS module," "analyzes web surfing patterns from the Web Cache module," "detects when the vehicle is parked in proximity to an 802.11 access point," and "switches the MHS 40 into client mode"). Ex. D, '771 Patent, 4:24-36. The term "local content module" here simply does not limit the functional nature of the claim to some definite structure.

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Second, the "local content module" phrase is subject to §112(f) because it recites "function without reciting sufficient structure for performing that function." *Williamson*, 792 F.3d at 1349. As discussed above, there is no "structure" disclosed in the '771 Patent specification associated with the "local content module." Even if there was, it would not be any structure that is specifically programmed to perform the claimed function of storing content that can be accessed by said client devices directly through said high-speed access point. The "local content module" phrase simply recites function without reciting structure for performing that function and is purely functional claiming subject to §112(f) construction.

Construed under §112(f), the "local content module" claim language is indefinite. The claimed function is "storing content that can be accessed by said client devices directly through said high-speed access point." Thus, the functions provided by the "module" are storing content and allowing user access to the content using their device (*e.g.*, a cellphone). As in *Williamson*, the claimed functions of storing content and allowing access by client devices (*e.g.*, cellphone) are implemented by a computer. Ex. B, Hansen Decl., ¶¶75-77. Indeed, the claim itself is directed to a "mobile wireless hot spot system" and the "local content module" stores and allows access through a short-range wireless access point, clearly a computer-based electronic communications processing system. *Id.* at ¶78. Accordingly, the corresponding structure "require[s] that the specification disclose an algorithm for performing the claimed function." *Williamson*, 792 F.3d at 1352.

Here, as in *Williamson*, the '771 specification discloses "merely functions of the [module]" and "does not set forth an algorithm for performing the claimed functions." *Williamson*, 792 F.3d at 1353. Because the specification fails to disclose any structure corresponding to the functions of "storing" and "allowing access" to content on the "local content module," the "local content

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module" phrase is indefinite. *Williamson* 792 F.3d at 1354.

### b.    '318 Patent ("processor")

| Term | GM's Construction | IV Construction |
|------|-------------------|-----------------|
| a processor configured to determine the length of time of the transmit opportunity based on a priority of the first queue | *Subject to §112(f); Indefinite* | *Plain and ordinary meaning, no construction necessary* |

The "processor is configured to" language in Claim 1 of the '318 Patent is subject to construction under §112(f) and is indefinite because the claimed function is performed by a general-purpose computer and the specification contains no algorithm for performing the claimed function.

Initially, the "processor is configured to" claim language is subject to §112(f) because it recites "'function without reciting sufficient structure for performing that function.'" *Williamson*, 792 F.3d at 1349. The "processor is configured to" claim language recites the function of "determine[ing] the length of time of the transmit opportunity based on a priority of the first queue." Ex. B, Hansen Decl., ¶¶50-53. However, the "processor" language in claim 1 does not recite sufficient structure for performing the claimed function. At most, the '318 Patent states that the "processor" is "general-purpose processor that is capable of performing the tasks described below and with respect to FIGS. 3 and 4." Ex. F, '318 Patent, 3:6-10; Ex. B, Hansen Decl., ¶52. Alone, this "general-purpose processor" cannot perform the claimed function of "determine[ing] the length of time of the transmit opportunity based on a priority of the first queue." Ex. B, Hansen Decl., ¶53. Rather, the general-purpose processor would need to be further programmed with specific instructions to enable it to become a special purpose processor capable of performing the claimed functions. *Id.* at ¶¶54-55. Accordingly, the "processor is configured to" claim language is

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subject to §112(f) construction because it recites function without reciting sufficient structure for performing that function.

Construed under §112(f), the "processor is configured to" claim language is indefinite. As explained above, the '318 Patent indicates that the claimed function referenced above is performed by a "processor" more specifically described as a "general-purpose processor." Ex. B, Hansen Decl., ¶¶52-55. Accordingly, an algorithm for performing the claimed functions must be included. *WMS Gaming*, 184 F.3d at 1349. The corresponding structure is not a general-purpose computer but rather the special purpose computer programmed to perform the disclosed algorithm. *Aristocrat*, 521 F.3d at 1333; *see also, Digital Retail Apps,* No 6:19-cv-00167-ADA ECF 54 at 5. However, the '318 specification contains no algorithm for performing the claimed function. Ex. B, Hansen Decl., ¶¶59-60. The '318 Patent specification fails to describe a "processor" that performs the claimed function. For example, there is no description of a "transmit opportunity" at all, let alone how to determine its length of time based on a priority of the first queue. *Id*. at ¶61. Because the '318 specification fails to include an algorithm for performing the claimed function, the "processor is configured to" claim language is indefinite. *Williamson*, 792 F.3d at 1354.

### c.      '356 Patent ("processor") (Claim 1)

| Term | GM's Construction | IV Construction |
|---|---|---|
| *"a processor configured to receive resource allocation information associated with an uplink physical control channel . . ."*<br><br>*"the processor is further configured to send data over the physical uplink shared channel in assigned time intervals"*<br><br>*the processor is further configured, in a time interval that it is not sending information over the* | *Subject to §112(f); Indefinite* | *Plain and ordinary meaning, no construction needed* |

| Term | GM's Construction | IV Construction |
|---|---|---|
| *physical uplink shared channel, to send a signal over the uplink physical control channel based on the received resource allocation information;*[7] | | |

The "processor [configured to / is further configured to]" language in claim 1 of the '356 Patent is subject to construction under § 112(f) and is indefinite because the claimed function is performed by a general-purpose computer and the specification contains no algorithm for performing the claimed function. Ex. C, Min Decl., ¶119.

Initially, the "processor is configured to" claim language is subject to §112(f) because it recites "function without reciting sufficient structure for performing that function." *Id*. at ¶94; *Williamson*, 792 F.3d at 1349. The "processor [configured to / is further configured to]" claim language recites three functions: "receive resource allocation information associated with an uplink physical control channel, wherein the uplink physical control channel and a physical uplink shared channel have different resources," "send data over the physical uplink shared channel in assigned time intervals," and "in a time interval that it is not sending information over the physical uplink shared channel, to send a signal over the uplink physical control channel based on the received resource allocation information." *Id*. at ¶93. However, the "processor" language in claim 1 does not recite sufficient structure for performing any of these claimed functions. *Id*. at ¶¶94-96. At most, the '356 Patent states that the "processor" is a "microprocessor," "microcontroller," "control logic," or "other digital circuitry under control of software, firmware, or hard-wired logic." *Id*. at ¶95; *id.* at Ex. 7, '356 Patent, 7:29-61. Each of these "processors" is a general-purpose

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7    GM raises this argument in response to the Court's order. *See* Ex. H.

computer/processor. *Id*.

Alone, none of these processors perform the claimed functions described above. Ex. C, Min Decl., ¶96. Rather, each processor would need to be further programmed with specific instructions to enable it to become a special purpose processor capable of performing the claimed functions. *Id*. at ¶97. Accordingly, the "processor [configured to / is further configured to]" claim language is subject to §112(f) construction because it recites function without reciting sufficient structure for performing that function. *Id*. at ¶98.

Construed under §112(f), the "processor [configured to / is further configured to]" claim language is indefinite. *Id*. at ¶¶99, 106, 113. As explained above, the '356 Patent indicates that the claimed function referenced above is performed by a general purpose computer/processor. *Id*. at ¶¶95, 101-102, 108-109, 115-116. Accordingly, an algorithm for performing the claimed functions must be included. *Id*. at ¶¶103, 110, 117; *WMS Gaming*, 184 F.3d at 1349. The corresponding structure is not a general-purpose computer but rather the special purpose computer programmed to perform the disclosed algorithm. *Id*. at ¶¶108-109, 115-116, 122-123; *Aristocrat*, 521 F.3d at 1333; *see also, Digital Retail Apps*, No 6:19-cv-00167-ADA ECF 54 at 5. However, the '356 specification contains no algorithm for performing the claimed functions. *Id*. at ¶¶104, 111, 118. For example, the specification does not provide any details as to *how* the processor performs any of the claimed functions. *Id*. Moreover, statements that a "general or *special purpose* processing engine" could be used, or "fixed hardware, programmable logic and/or an appropriate combination thereof, as would be recognized by one skilled in the art to carry out the recited functions" is not a substitute for providing an algorithm that describes how the processor is programmed to perform a particular function. *Id*. at Ex. 7, '356 Patent, 7:34-37, 57-60. *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1383-85, (Fed. Cir. 2009).

Because the '356 Patent specification fails to include an algorithm for performing the claimed function, the "processor [configured to / is further configured to]" claim language is indefinite. *Id*. at ¶¶104-105, 111-112, 118-119; *Williamson*, 792 F.3d at 1354.

### d.    '641 Patent ("circuitry")

| Term | GM's Construction | IV Construction |
|------|-------------------|-----------------|
| "circuitry configured to receive broadcast information to access an orthogonal frequency division multiple access (OFDMA) system . . . (claim 11)<br><br>"circuitry configured to determine a second bandwidth of a second band that is associated with the OFDMA system based upon the broadcast information received in the first band . . . (claim 11)<br><br>"wherein the mobile station is configured to operate within the plurality of operating channel bandwidths" (claims 11 and 25)[8] | *Subject to §112(f); Indefinite* | *Plain and ordinary meaning, no construction needed* |

The "circuitry configured to" language in claims 11 and 25 of the '641 Patent is subject to construction under § 112(f) and is indefinite because the claimed functions are performed by a general-purpose computer(s) and the specification contains no algorithm for performing the claimed function. Ex. C, Min Decl., ¶¶120-164.

The "circuitry configured to" language of claim 11 and "mobile station is configured to" claim language in claims 11 and 25 are subject to §112(f) because both recite "'function without reciting sufficient structure for performing that function.'" Ex. C, Min Decl., ¶¶128, 131, 156; *Williamson*, 792 F.3d at 1349. The "circuitry configured to" claim language recites functions that relate to the first band that include "receiv[ing] broadcast information to access an orthogonal frequency division multiple access (OFDMA) system," "wherein the broadcast information is

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[8] GM raises this argument in response to the Court's order. *See* Ex. H.

received only in a first band having a first bandwidth and the broadcast information is carried by a plurality of groups of subcarriers with each group having a plurality of contiguous subcarriers," "wherein the first band is contained within the second band," "wherein the plurality of contiguous subcarriers have fixed spacing," and "wherein the first band is defined as a frequency segment with a bandwidth that is not greater than a smallest operating channel bandwidth among the plurality of operating channel bandwidths, the first band having a same value for the plurality of operating channel bandwidths." Ex. C, Min Decl., ¶122.

The "circuitry configured to" claim language recites functions that relate to the second band that include "circuitry configured to determine a second bandwidth of a second band that is associated with the OFDMA system based upon the broadcast information received in the first band, wherein a second bandwidth of the second band is greater than the first bandwidth of the first band," "wherein a data channel is carried by at least one subcarrier group of the second band," and "wherein a number of usable subcarriers is adjustable to realize a variable band, wherein the number of usable subcarriers is determined based on a plurality of operating channel bandwidths." *Id*. at ¶123.

The "mobile station is configured to" claim language, which appears in claims 11 and 25, recites one broad functionality that it "operate[s] within the plurality of operating channel bandwidths." *Id*. at ¶153; *Rain Computing v. Samsung Electronics America*, 989 F. 3d 1002, 1007-08 (Fed. Cir. 2021) ("Applicants are free to invoke § 112 ¶6 for a claim term nested in a method claim. We have never held otherwise.")

The "circuitry" language in claim 11 and "mobile station" language in claims 11 and 25 do not recite sufficient structure for performing the claimed functions. Ex. C, Min Decl., ¶¶124-131, 151-156. At most, the '641 Patent states that "[w]hile specific circuitry may be employed to

implement the above embodiments, aspects of the invention can be implemented in a suitable computing environment." *Id*. at ¶¶152, 162;'641 Patent, 7:19-21. Thus, this disclosure amounts to nothing more than a general-purpose computer that cannot perform the claimed functions without being further programmed with specific instructions to enable it to become a special purpose computer capable of performing the claimed functions. *Id.* at ¶¶125-131, 152-155. Accordingly, the "circuitry configured to" and "mobile station is configured to" claim language is subject to §112(f) construction because it recites function without reciting sufficient structure for performing that function. *Id*. at ¶¶132, 156.

Construed under §112(f), the claim language is indefinite. *Id*. at ¶¶132, 140, 157. As explained above, the '641 Patent indicates that the claimed function referenced above is performed by a general-purpose computer. *Id*. at ¶¶124-131, 134, 142, 151-156, 159. Accordingly, an algorithm for performing the claimed functions must be included. *Id*. at ¶¶135-136, 143-144, 160-161; *WMS Gaming*, 184 F.3d at 1349. However, the '641 specification contains no algorithm for performing the claimed functions. *Id*. at ¶¶137-138, 146-147, 162-163. The specification does not provide any details as to *how* the processor performs any of the claimed functions, such as through the use of a logic diagram, circuit schematic, or hardware description for the "processor." *Id*. Moreover, statements that a "specific circuitry" could be used, or "a suitable computing environment," is not a substitute for providing an algorithm that describes how the circuitry and mobile station are programmed to perform a particular function. *See id*; *Blackboard,* 574 F.3d at 1383-85. Because the '641 Patent specification fails to include an algorithm for performing the claimed function, the "processor [configured to / is further configured to]" claim language is indefinite. Ex. C, Min Decl., ¶¶137-139, 146-148, 162-164; *Williamson*, 792 F.3d at 1354.

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e.        '158 Patent ("processing component ...configured to")

| Term | GM's Construction | IV Construction |
|------|-------------------|-----------------|
| "a processing component configured to… (claim 1)<br><br>"the processing component is configured to…" (claim 9)<br><br>"the processing component is further configured to… (claim 5) | *Subject to §112(f); Indefinite* | *Plain and ordinary meaning* |

Claims 1, 5, and 9 of the '158 Patent each contain purely functional claim language that begins with the phrase "processing component...configured to." The processing component configured to language in each of these claims is subject to construction under §112(f) and is indefinite because the claimed function is performed by a computer and the specification contains no algorithm. For each of these claims, the presumption that §112(f) does not apply is rebutted under both *Williamson* tests. First, the "processing component" language fails to recite sufficiently definite structure. The claim language is purely functional: for claims 1 and 9 the claimed function is controlling/determining an integration time of each sensor/channel.[9] For claim 5, the claimed function is "combining data from the plurality of sensors received to provide an image."

The addition of the introductory phrase "processing component" does nothing to change the functional nature of the phrase. The term "component" is virtually limitless and the '158 patent uses this term to refer generically to components that perform a variety of different functions including "optics components," "[d]igital camera components," "system control components" (Ex. A, Andrews Decl. at Ex. 3, 22:63-64) components of the electromechanical device portion of the lens assembly (*id.* at 6:9-12), circuit board components (*id.* at 6:47-51) as well as generic components of defined terms like the digital camera subsystem (*id.* at 23:33-41). The use of the

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9    For purposes of the §112(f) analysis, these terms are equivalent. Ex. A, Andrews Decl., ¶162.

term "components" in this manner indicates that the term is being used synonymously with the term "means." The term "processing" is merely an adjective to describe generic functions—the unspecified component processes. It is essentially the same as "processing means."

Even in the specific discussion of controlling integration times and combining data to form an image, the specification fails to describe a definite structure. Citing to Figure 3, the specification describes a generic "image processor block 270" that generates a combined image, but no "image processor block 270" structure is provided other than to say it is included as a portion of the processor. *Id.* at 8:32-47. The same passage identifies a generic "integration controller portion 300" but again states that this block is only a "component of the variable integration time that provides integration time control for each of the camera channels." *Id.;* Ex. A, Andrews Decl., ¶¶149-150. The introductory phrase "processing component" simply does not limit the functional nature of the claim language to some definite structure or change its purely functional nature .

Second, it is readily apparent that the "processing component" claim language recites 'function without reciting sufficient structure for performing that function.'" *Williamson*, 792 F.3d at 1349. As discussed above, the '158 Patent specification refers only to an "integration time controller" that is but one component of "controlling the integration time," and to an unspecified "image processor portion" included in a processor that generates a combined image. Even if these references somehow identify identifiable structure, they do not connote or identify a structure that performs the claimed functions of controlling an integration time or combining data to provide an image. Ex. A, Andrews Decl. ¶¶152-153. A "controller" or "processor" does not and cannot perform the claimed functions without further special programming. *Id.* at ¶¶154-156. Here, the '158 Patent contains no algorithm that indicates how a processor or controller is specially programmed to perform either of the claimed functions. *Id.* at ¶¶157-160. As a result, the

"processing component...configured to" claim language simply recites function without reciting structure sufficient for performing that function and is purely functional claiming subject to §112(f) construction.

Construed under §112(f), the "processing component … configured to" claim language in each claim is clearly indefinite. The claimed function of claims 1 and 9 is controlling/determining an integration time of a sensor/channel, and the function of claim 5 is combining data received from the sensors to provide an image. As in *Williamson*, these claimed functions are implemented by a computer. As discussed above, the '158 Patent indicates that the integration time function is partly performed by a "controller," and that the image processing (combining) function is performed by some component inside a "processor." *Id.* at 8:32-47; Ex. A, Andrews Decl., ¶¶161-163. When a claim refers to a processor or processing component that performs a claimed function, the corresponding structure for performing the function must "be more than simply a general-purpose computer or microprocessor." *Aristocrat* at 1333. Accordingly, as in *Williamson*, the corresponding structure "require[s] that the specification disclose an algorithm for performing the claimed function." *Williamson*, 792 F.3d at 1352.

As discussed above, the '158 Patent does not include an algorithm that indicates how a "processor" or "controller" is programmed to turn it into a special purpose computer for performing the claimed controlling integration time or combining data functions. Accordingly, the "processing component" claim language in claims 1, 5, and 9 is indefinite.

### f. '475 Patent ("processing module configured to…")

| Term | GM's Construction | IV Construction |
|------|-------------------|-----------------|
| "processing module configured to determine, while the device is in the vehicle, that the vehicle committed a violation based on the information about the vehicle" (claim 1) | *Subject to §112(f); Indefinite* | *Plain and ordinary meaning* |

The "processing module" language in Claim 15 of the '475 Patent is indefinite for reasons

similar to those expressed above for the "local content module." The presumption that §112(f) does not apply is rebutted under both *Williamson* tests. First, the "processing module" term fails to recite sufficiently definite structure. The claim language is purely functional—"determine…that the vehicle committed a violation based on the information about the vehicle." The addition of the introductory phrase "processing module" does nothing to change its functional nature. The term "module" is a well-known nonce word that often functions as a substitute for "means" in the context of §112(f). *Williamson*, 792 F.3d at 1350. As explained in *Williamson*, "'module' is simply a generic description for software or hardware that performs a specified function." *Id.; see also, Digital Retail Apps, Inc. v. H-E-B, L.P.*, No 6:19-cv-00167-ADA ECF 54 at 16 (W.D. Texas, Nov. 1, 2019).

The '475 Patent specification makes clear that the term "module" is being used synonymously with the term means and not as a term that describes a particular, definite structure. The specification uses the term "module" generically to describe a variety of different "modules" for performing different functions. *See, e.g.,* Ex. A, Andrews Decl. at Ex. 7, '475 Patent, Figure 2 ("encryption module," "Input module," "storage module," "display module," "transmission module," "date & time module," "user verification module," "speed control module"). Ex. A, Andrews Decl. ¶¶189-191. On several occasions, the term "module" is even used as a direct substitute for the word means. *See, e.g., id.* at Abstract ("locational information module for determining location information," "a storage module for storing at least one geographic map"); *id.* at 2:23-25; 2:33-35 ("display module for alerting a user if the speed of the device exceeds the determined speed limit"); *id.* at 2:49-54 ("transmission module for transmitting the location information and speed of the at least one device to a server"). The term "processing" is an adjective that simply indicates the module is involved in processing activities. Indeed, a POSITA would

understand from the '475 Patent that the term "processing module" is not structurally limiting and is intended to encompass any "hardware, software, firmware," "special purpose processors" or "combinations thereof" for performing a variety of different functions. *Id.* at 3:56-65; Ex. A Andrews Decl. ¶¶192-194.

Second, the "processing module" term recites "function without reciting sufficient structure for performing that function." The "processing module" claim language does not recite sufficient structure for performing the claimed determining that a vehicle committed a violation function. At most, the '475 specification indicates that the "processing module" is some form of generic computer device. For example, the '475 Patent refers to a "*computer* processing module" and provides as examples a "microprocessor" "hardware," "software," "firmware" or "combinations thereof":

> Referring to FIG. 2, the various components of the device 100 will now be described. ***The device will contain a computer processing module 120, e.g., a microprocessor.*** The computer processing module 120 will use computer software instructions that have been programmed into the module and conventional computer processing power to interact and organize the traffic flow between the various other modules. ***It is to be understood that the present disclosure may be implemented in various forms of hardware, software, firmware, special purpose processors, or a combination thereof.***

*Id.* at Ex. 7, '475 Patent 3:56-65. None of these generic computer devices perform the claimed function without being specially programmed to implement that functionality. Ex. A, Andrews Decl., ¶¶195-201. Indeed, the '475 specification even recognizes that the computer processing module "will use computer software instructions that have been programmed into the module." *Id.* Accordingly, the "processing module" claim language fails to recite sufficient structure to perform the recited "determining" function and is subject to construction under §112(f).

Construed under §112(f), the "processing module" claim language is indefinite. As discussed above, the claimed function is determining that a vehicle committed a violation, and this

function is implemented by a programmed general-purpose microprocessor or computer device. *Id.*

at ¶¶202-206. Accordingly, the corresponding structure described in the patent specification must

include an algorithm for performing the claimed function. *WMS Gaming*, 184 F.3d at 1349. Here,

the '475 Patent contains no algorithm for performing the claimed function. Ex. A, Andrews Decl.

¶¶207-209.   Because the '475 Patent fails to include an algorithm for performing the claimed

function, the "processing component" claim language is indefinite.

### g.        '628 Patent ("processor configured to:….")

| Term | GM Construction | IV Construction |
|---|---|---|
| "processor is configured to:…Detect a movement of a door latch of a vehicle"<br><br>"processor is configured to:…"attempt to detect a wireless key fob configured to provide digital authorization for an attempted access event" (claim 1) | *Subject to §112(f); Indefinite* | *Plain and ordinary meaning* |

The "processor is configured to" language in claim 1 of the '628 Patent is indefinite

because the claimed function is performed by a general-purpose computer and the specification

contains no algorithm for performing the claimed function.

The "processor is configured to" claim language recites functions that include "detect[ing]

a movement of a door latch of a vehicle" and "attempt[ing] to detect a wireless key fob configured

to provide digital authorization for an attempted access event." Ex. A, Andrews Decl., ¶¶216-217.

However, the "processor" language in claim 1 does not recite sufficient structure for performing

either of these two claimed functions. At most, the '628 Patent states that the "processor" is

"typically a microprocessor" and identifies microprocessors provided by several manufacturers,

including Athlon microprocessors from Advanced Micro Devices, Inc., X86 and P86

microprocessors from Intel as well as microprocessors offered by Motorola, Inc., International

Business Machines Corp., and Transmeta Corp. '628 Patent, 10:47-64. Each of these

microprocessors is a general-purpose computer/processor. *Id.* at ¶218. Alone, none of these microprocessors performs the claimed functions of detecting movement of a door latch or attempting to detect a wireless key fob. *Id.* at ¶219. Rather, each microprocessor would need to be further programmed with specific instructions to enable it to become a special purpose processor capable of performing the claimed functions. *Id.* at ¶220. Accordingly, the "processor is configured to" claim language is subject to §112(f) construction because it recites function without reciting sufficient structure for performing that function. *Id.* at ¶221.

Construed under §112(f), the "processor is configured to" claim language is indefinite. The '628 Patent indicates that the claimed functions referenced above are performed by a "processor," more specifically described as a "microprocessor." *Id.* at ¶¶222-228. Accordingly, an algorithm for performing the claimed functions must be included. *WMS Gaming*, 184 F.3d at 1349. However, the '628 specification contains no algorithm for performing the claimed functions. *Id.* at ¶¶229-230. For example, the '628 specification contains only one reference to a wireless key fob; a general statement that a "set of rules" could specify that when door latch movement is detected, yet unaccompanied by a digital authorization from a wireless key fob, the contents of the loop buffer 14 should be transferred." *Id.* at Ex. 11, '628 Patent, at 6:65-7:8. This statement describes the function of transferring video when door latch movement is detected and there is no digital authorization from a wireless key fob, not *how* the processor is programmed to detect door latch movement or *how* it is programmed to detect a wireless key fob specifically configured to provide a digital authorization of an attempted access event. Ex. A, Andrews Decl. ¶¶231-239. Because the '628 specification fails to include an algorithm for performing the claimed functions, the "processor is configured to" claim language is indefinite. *Williamson*, 792 F.3d at 1354.

h.     '138 Patent ("processor")

| Term | GM's Construction | IV Construction |
|------|------------------|-----------------|
| "processor is configured to . . . ." (claim 1) | *Subject to §112(f); Indefinite* | *Plain and ordinary meaning* |

The "processor is configured to" language in Claim 1 of the '138 Patent is subject to construction under §112(f) at least because the claim language fails to recite sufficient structure for performing the claimed functions and is indefinite because the claimed function is performed by a general-purpose computer and the specification does not contain an algorithm for performing the claimed function. Ex. C, Min Decl., ¶¶193-194, 199-201.

Initially, the "processor is configured to" claim language is subject to §112(f) because it recites "function without reciting sufficient structure for performing that function." *Id*. at ¶192; *Williamson*, 792 F.3d at 1349. The "processor is configured to" claim language recites the function of "[i] ***cause the circuitry*** to receive parameters associated with a plurality of radio bearers," "[ii] determine a plurality of buffer occupancies, wherein each of the plurality of buffer occupancies is associated with one or more radio bearers of the plurality of radio bearers," "[iii] cause the transmitter to transmit a message including the plurality of buffer occupancies to a network," "[iv] cause the circuitry to receive a single allocation of uplink resources," and "[v] select data from the plurality of radio bearers for transmission using the single allocation of uplink resources, wherein the selection of the data occurs using a first iteration and a second iteration, wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters, wherein in the second iteration, the selection of the data is based on buffered data for respective radio bearers, and cause the transmitter to transmit a signal including the selected data." Ex. C, Min Decl., ¶191. However, the "processor" language in claim 1 does not recite sufficient structure for performing the claimed functions. *Id*. at ¶192-194. At most, the '138

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Patent states that the "processor" is "operably coupled to memory." *Id*. at ¶193; *id*. at Ex. 3, '138 Patent, 4:49. Alone, this "processor operably coupled to memory" cannot perform the claimed function identified above. Ex. C, Min Decl., ¶¶193-194. Rather, the processor would need to be further programmed with specific instructions to enable it to become a special purpose processor capable of performing the claimed functions. *Id*. at ¶195. Accordingly, the "processor is configured to" claim language is subject to §112(f) construction because it recites function without reciting sufficient structure for performing that function. *Id*. at ¶196.

Construed under §112(f), the "processor is configured to" claim language is indefinite. *Id*. at ¶197. As explained above, the '138 Patent indicates that the claimed function referenced above is performed by a "processor" more specifically described as a "processor operably coupled to memory." *Id*. at ¶¶193, 199. Accordingly, an algorithm for performing the claimed functions must be included. *Id*. at ¶199. *WMS Gaming*, 184 F.3d at 1349. The corresponding structure is not a general-purpose computer but rather the special purpose computer programmed to perform the disclosed algorithm. Ex. C, Min Decl., ¶199. *Aristocrat*, 521 F.3d at 1333; *see also, Digital Retail Apps,* , No 6:19-cv-00167-ADA ECF 54 at 5. However, the '138 specification does not contain and algorithm for performing the claimed function. Ex. C, Min Decl. ¶¶199-200. For example, the specification describes several functions and fails to describe an algorithm for performing the claimed functions. *Id*. at ¶¶76-80, 191. For example, the specification does not provide any logic diagram, circuit schematic, or hardware description for the "processor." *Id*. at ¶199. Similarly, the '138 Patent specification fails to describe a "processor" that performs the claimed function. *Id*. Because the '138 specification fails to include an algorithm for performing the claimed functions, the "processor is configured to" claim language is indefinite. *Id*. at 200. *Williamson*, 792 F.3d at 1354.

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## CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a). As such, this document was served on all counsel who have consented to electronic service on June 17, 2022.

/s/ Jeffrey D. Mills
Jeffrey D. Mills